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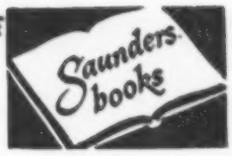

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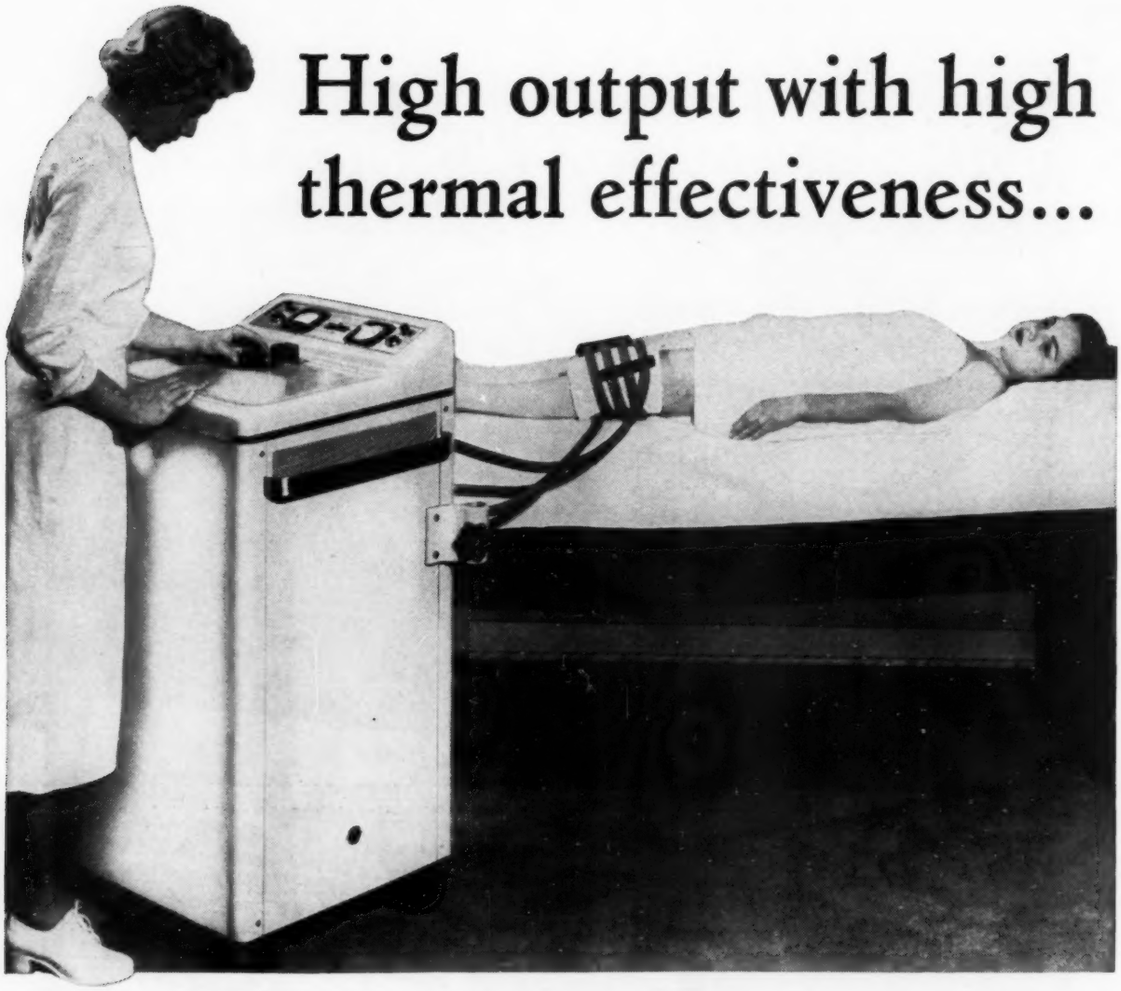

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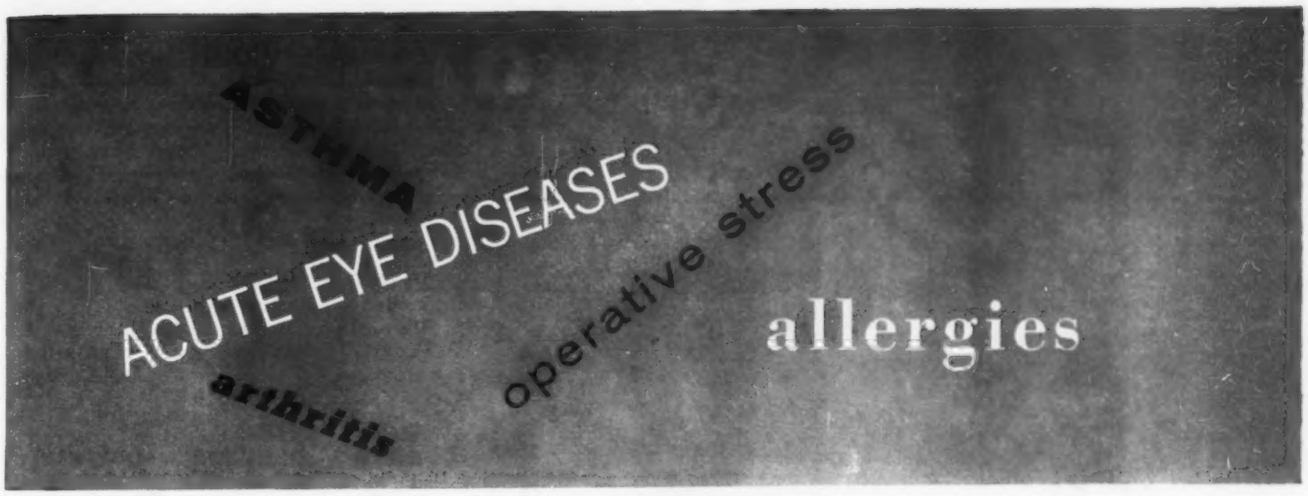

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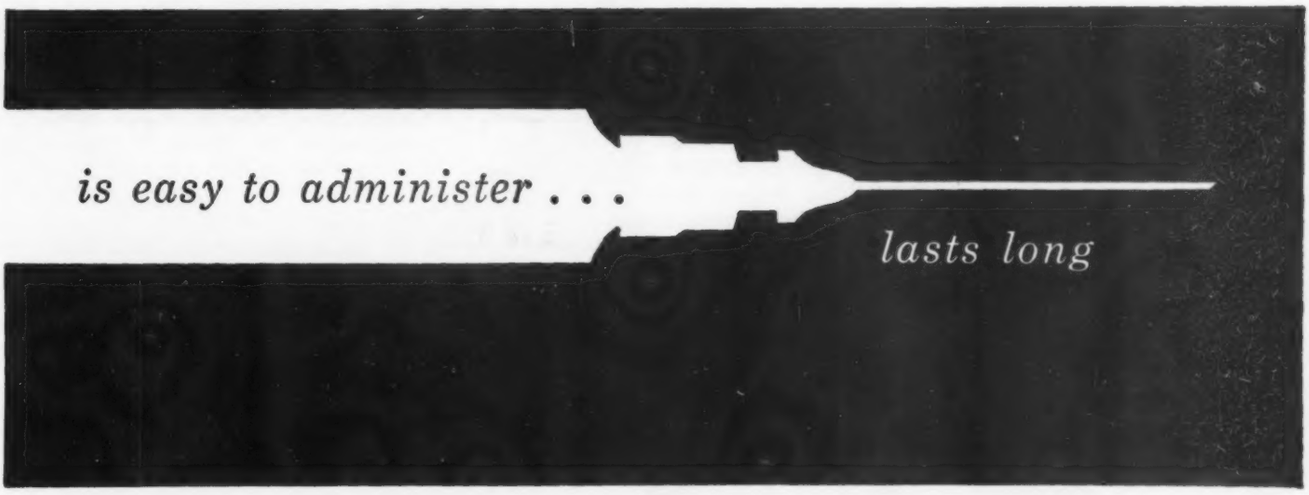

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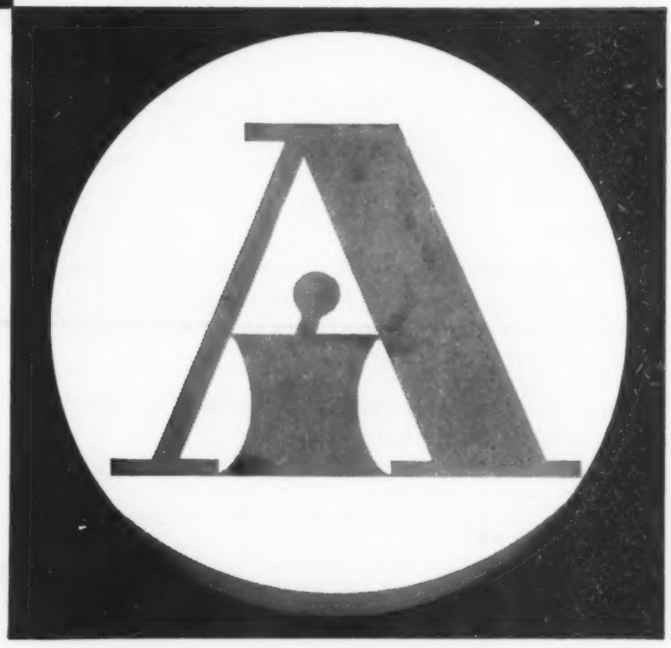

TANGIBLE RELIEF IN PREMENSTRUAL TENSION

another indication for Diamox*

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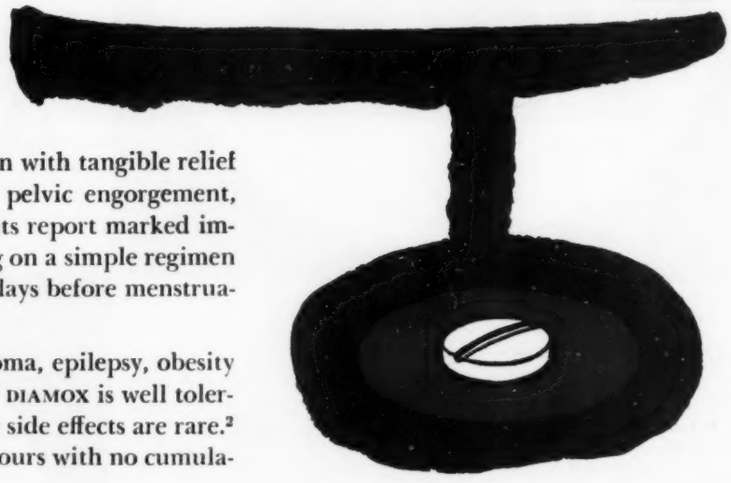

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Of proven value in cardiac edema, acute glaucoma, epilepsy, obesity with edema, toxemias and edema of pregnancy,[1] DIAMOX is well tolerated orally and even when given in large dosage side effects are rare.[2] Excretion by the kidney is complete within 24 hours with no cumulative effects.[2]

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1. Krantz, J. C. and Carr, C. J.: The Pharmacologic Principles of Medical Practice. Ed. 3. The Williams & Wilkins Co., Baltimore, 1954, p. 1014.

2. Goodman, L. S. and Gilman, A.: The Pharmacological Basis of Therapeutics. Ed. 2. The Macmillan Co., New York, 1955, p. 856.

*REG. U. S. PAT. OFF.

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"...patients hospitalized for many years..."

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and are now at home."

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many mental patients

"may not have to enter hospitals."

–Pollack[1]

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1. Pollack, B.: in Chlorpromazine and Mental Health, Philadelphia, Lea & Febiger, 1955.

NATIONAL ORGANIZATIONS OF MEDICAL INTEREST

SOCIETY	PRESIDENT	SECRETARY	MEETING
American Public Health Association	Ira V. Hiscock, New Haven, Conn.	B. M. Atwater, 1790 Broadway, New York 19	
Radium Society	N. A. McCormick, Windsor, Ont., Canada	Theodore R. Miller, 139 East 36th St., New York 16	Quebec City, Can., May 30-June 1
Rheumatism Assn.	William D. Robinson, Ann Arbor, Mich.	Edward F. Hartung, 580 Park Ave., New York 21	Toronto, Can., June 23-28
Roentgen Ray Society	W. Edward Chamberlain, Philadelphia 40	Barton R. Young, Germantown Hosp., Philadelphia 44	Washington, D. C., Oct. 1-4
School Health Assn.	I. P. Barrett, Fort Worth, Tex.	A. O. DeWeese, 515 E. Main St., Kent, Ohio	
Society for Clinical Investigation	A. McGehee Harvey, Baltimore 5	J. D. Meyers, U. of Pittsburgh, Sch. of Med., Pittsburgh 13	
Society for Experimental Pathology	Frank W. Hartman, Detroit	Cyrus C. Erickson, 858 Madison Ave., Memphis 3, Tenn.	Chicago, April 13-19
Society for Pharm. & Ex. Ther.	Harry Beckman, Milwaukee 3	Harold Hodge, Univ. of Rochester, Rochester 20, N. Y.	
Society for the Study of Sterility	W. T. Pommerenke, Rochester, N. Y.	H. H. Thomas, 920 S. 19th St., Birmingham, Ala.	New York, May 31-June 2
Society of Anesthesiologists	Irving M. Pallin, Brooklyn, N. Y.	J. E. Rehlinger, Jr., 188 W. Randolph St., Chicago 1	Los Angeles, Oct. 14-19.
Society of Biological Chemists	H. E. Carter, Urbana, Ill.	Philip Handler, Duke University, Durham, N. C.	Chicago, April 15
Society of Clinical Pathologists	John L. Goforth, Dallas, Texas	C. G. Culbertson, 1040 W. Michigan St., Indianapolis 6	New Orleans, Sept. 29-Oct. 4
Society of Maxillofacial Surgeons	Douglas B. Parker, New Orleans	John A. Drummond, 1414 Drummond St., Montreal 25, Can.	Minneapolis, May 12-15
Society of Tropical Medicine & Hygiene	Asa C. Chandler, Houston 1, Texas	John E. Larsh, Jr., Univ. of N. Car., Chapel Hill, N. C.	
Surgical Assn.	Loyal Davis, Chicago	R. Kennedy Gilchrist, 50 E. Madison St., Chicago 3	Chicago, May 8-10
Therapeutic Society	Gerald H. Pratt, New York	O. B. Hunter, Jr., 915 19th St., N.W., Washington, D. C.	New York, May 30-June 2
Trudeau Society	Paul C. Samson, Lafayette, Calif.	William G. Childress, 1790 Broadway, New York 19	Kansas City, Mo., May 6-9
Urological Assn.	George C. Prather, Brookline 46, Mass.	Samuel L. Raines, 188 S. Bellevue Blvd., Memphis, Tenn.	Pittsburgh, May 6-9
Venereal Disease Assn.	Ivan E. Martin, Modesto, Calif.	S. R. Taggart, 300 Indiana Ave. N.W., Wash. 1, D. C.	
Veterinary Medical Assn.	W. O. Kester, Washington, D. C.	J. G. Hardenbergh, 600 S. Michigan Ave., Chicago 5	Cleveland, Aug. 19-22
Assn. for Research in Nervous & Ment. Dis.	Harry Solomon, Boston	Rollo J. Masselink, 700 W. 168th St., New York 32	
Assn. for Research in Ophthalmology	William B. Clark, New Orleans	Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6	
Assn. of American Medical Colleges	John B. Youmans, Nashville 5, Tenn.	Dean F. Smiley, 2530 Ridge Ave., Evanston, Ill.	Atlantic City, N. J., Oct. 21-23
Assn. of American Physicians	C. Phillip Miller, Chicago 37	P. B. Beeson, Yale U. Sch. of Med., New Haven 11, Conn.	Atlantic City, N. J., May 7-8
Assn. of Life Ins. Med. Dir. of America	Ralph R. Simmons, Des Moines, Iowa	Henry B. Kirkland, P. O. Box 594, Newark 1, N. J.	
Assn. of Medical Illustrators	Mr. Leon Schlossberg, Baltimore 5	Miss Rose M. Reynolds, 42nd and Dewey Ave., Omaha 5	
Assn. of Military Surgeons of U. S.	W. Dana, U.S.N., Washington 25, D. C.	R. E. Bitner, 1726 I St., N.W., Washington 6, D. C.	
Assn. of State & Territorial Health Officers	Daniel Bergsma, Trenton, N. J.	Franklin D. Yoder, State Board of Health, Cheyenne, Wyo.	
Biological Photographic Assn.	Mr. H. Lou Gibson, Rochester 4, N. Y.	Miss J. Waters, Box 1668, Grand Central P. O., N. Y. 17	
Central Assn. of Ob. & Gyn.	Arthur B. Hunt, Rochester, Minn.	Edwin J. DeCosta, 104 S. Michigan Ave., Chicago 3	Omaha, Oct. 17-19
Central Neuropsychiatric Assn.	G. Wilee Robinson Jr., Kansas City, Mo.	R. M. Patterson, Ohio S. Univ. Col. of Med., Columbus 10, Ohio	Dallas, Tex., Oct. 18-19
Central Society for Clinical Research	Kenneth Kobbstead, Indianapolis	William S. Jordan Jr., 2109 Adelbert Rd., Cleveland 6	
Central Surgical Assn.	Robert M. Zollinger, Columbus 10, Ohio	Charles D. Branch, 102 North St., Peoria, Ill.	Chicago, Feb. 21-23
Clinical Orthopaedic Society	J. Neill Garber, Indianapolis 4	Marcus J. Stewart, 869 Madison Ave., Memphis, Tenn.	Kansas City, Mo., Oct. 11-12
College of American Pathologists	W. A. D. Anderson, Miami, Fla.	A. H. Dearing, Prudential Plaza, Suite 2115, Chicago 1	New Orleans, Sept. 29-Oct. 4
Gerontological Society	William B. Kountz, St. Louis 9	Nathan W. Shock, Baltimore City Hospitals, Baltimore 24	
Industrial Medical Association	E. S. Jones, Hammond, Ind.	H. Glen Gardiner, Inland Steel Co., East Chicago, Ind.	St. Louis, April 22-26
Interstate Postgrad. Med. Assn. of N. A.	J. Mather Pfeiffenberger, Alton, Illinois	Erwin R. Schmidt, Box 1109, Madison 1, Wis.	Chicago, Sept. 29-Oct. 3
Medical Library Assn.	Miss Bertha B. Hallam, Portland 1, Ore.	Mrs. H. T. Perkins, 333 Cedar St., New Haven 11, Conn.	New York, May 6-10
National Medical Assn.	Theodore R. M. Howard, Chicago	John T. Givens, 1108 Church St., Norfolk 10, Va.	Cleveland, Aug. 12-15
National Multiple Sclerosis Society	Mr. Ralph C. Glock, New York	Mr. Donald Vail, 270 Park Ave., New York 17	New York, March, 1957
National Proctologic Assn.	R. A. Winters, Chicago	George E. Mueller, 59 E. Madison St., Chicago 2	
National Tuberculosis Assn.	Howard W. Bosworth, Los Angeles 26	Mrs. Morrell DeReign, 1790 Broadway, New York 19	Kansas City, Mo., May 5-10
Neurosurgical Society of America	Joshua A. Speigel, Chicago 2	Frank P. Smith, 260 Crittenden Blvd., Rochester 20, N. Y.	Palm Springs, Calif., Jan. 16-19
Radiological Society of North America	Clarence E. Hufford, Toledo, Ohio	D. S. Childs, 713 E. Genesee St., Syracuse 2, N. Y.	
Society for Investigative Dermatology	Maximilian E. Obermayer, Los Angeles 5	Herman Beerman, 255 S. 17th St., Philadelphia 3	New York, June 1-2
Society for Pediatric Research	William M. Wallace, Cleveland 6	Sydney S. Gellis, 330 Brookline Ave., Boston 15	Carmel, Calif., June 16-21
Society for Vascular Surgery	Arthur H. Blakemore, New York 32	Henry Swan, 4200 East 9th Ave., Denver 20	New York, June 2
Society of American Bacteriologists	C. A. Stuart, Providence, R. I.	J. H. Bailey, Sterling-Winthrop Res. Inst. Rensselaer, N. Y.	Detroit, April 28-May 2
Society of Biological Psychiatry	Margaret A. Kennard, Vancouver, B. C.	George N. Thompson, 2010 Wilshire Blvd., Los Angeles 57	Atlantic City, N. J., June 15-16
Society of Clinical Surgery	Richard K. Gilchrist, Jr., Chicago	F. F. Albritton, Jr., Univ. of Kans., Kansas City, Kan.	
Society of Neurological Surgeons	Edgar F. Fincher, Emory University, Ga.	Bronson S. Ray, 525 E. 68th St., New York 21	
Society of University Surgeons	Harold A. Zintel, Philadelphia 4	James Hardy, Hospital of the U. of Miss., Jackson, Miss.	Columbus, Ohio, Feb., 1957
Southeastern Surgical Congress	J. O. Morgan, Gadsden, Ala.	B. T. Beasley, 45 Edgewood Ave, S.E., Atlanta 3, Ga.	St. Petersburg, Fla., April 1-4
Southern Medical Assn.	W. Raymond McKenzie, Baltimore 1	Mr. V. O. Foster, Empire Bldg., Birmingham 3, Ala.	
Southern Surgical Assn.	Deryl Hart, Durham, N.C.	George G. Finney, 2947 St. Paul St., Baltimore 18	
Southwestern Medical Assn.	John Dettweiler, Albuquerque, N. Mex.	Russell L. Deter, 1501 Arizona St., El Paso, Tex.	Albuquerque, N. Mex., 1956
Southwestern Surgical Congress	John V. Goode, Dallas, Texas	C. M. O'Leary, 207 Plaza Court Bldg., Oklahoma City	Wichita, Kans., April 15-17
Student American Medical Assn.	Mr. Kent Guild, Chicago	Mr. Russell F. Staudacher, 510 N. Dearborn St., Chicago 10	Philadelphia, May 3-5
The Endocrine Society	Warren O. Nelson, New York	H. H. Turner, 1200 N. Walker St., Oklahoma City	
U. S. Section, Internat'l Coll. of Surgeons	Curtice Rosser, Dallas, Texas	Karl Meyer, 1516 Lake Shore Dr., Chicago	Chicago, Sept. 9-12
Western Industrial Medical Assn.	Packard Thurber Jr., Los Angeles 14	Edward J. Zaik, 740 S. Olive St., Los Angeles 14	
Western Orthopedic Assn.	James Lytton-Smith, Phoenix, Ariz.	John Ricker, 926 E. McDowell Rd., Phoenix	
Western Society of Electro-Encephalography	Arthur A. Ward Jr., Seattle	S. N. Berens, 902 Boren Ave., Seattle	
Western Surgical Assn.	Charles G. Johnston, Detroit	John T. Reynolds, 612 N. Michigan Blvd., Chicago 11	
Woman's Auxiliary to the Am. Med. Assn.	Mrs. Robert Flanders, Manchester, N. H.	Miss Margaret Wolfe 535 N. Dearborn St., Chicago 10	New York, June 3-7
World Medical Assn.	J. A. Bustamante, Havana, Cuba	Louis H. Bauer, 10 Columbus Circle, New York 19	Istambul, Turkey, Sept. 29-Oct. 5

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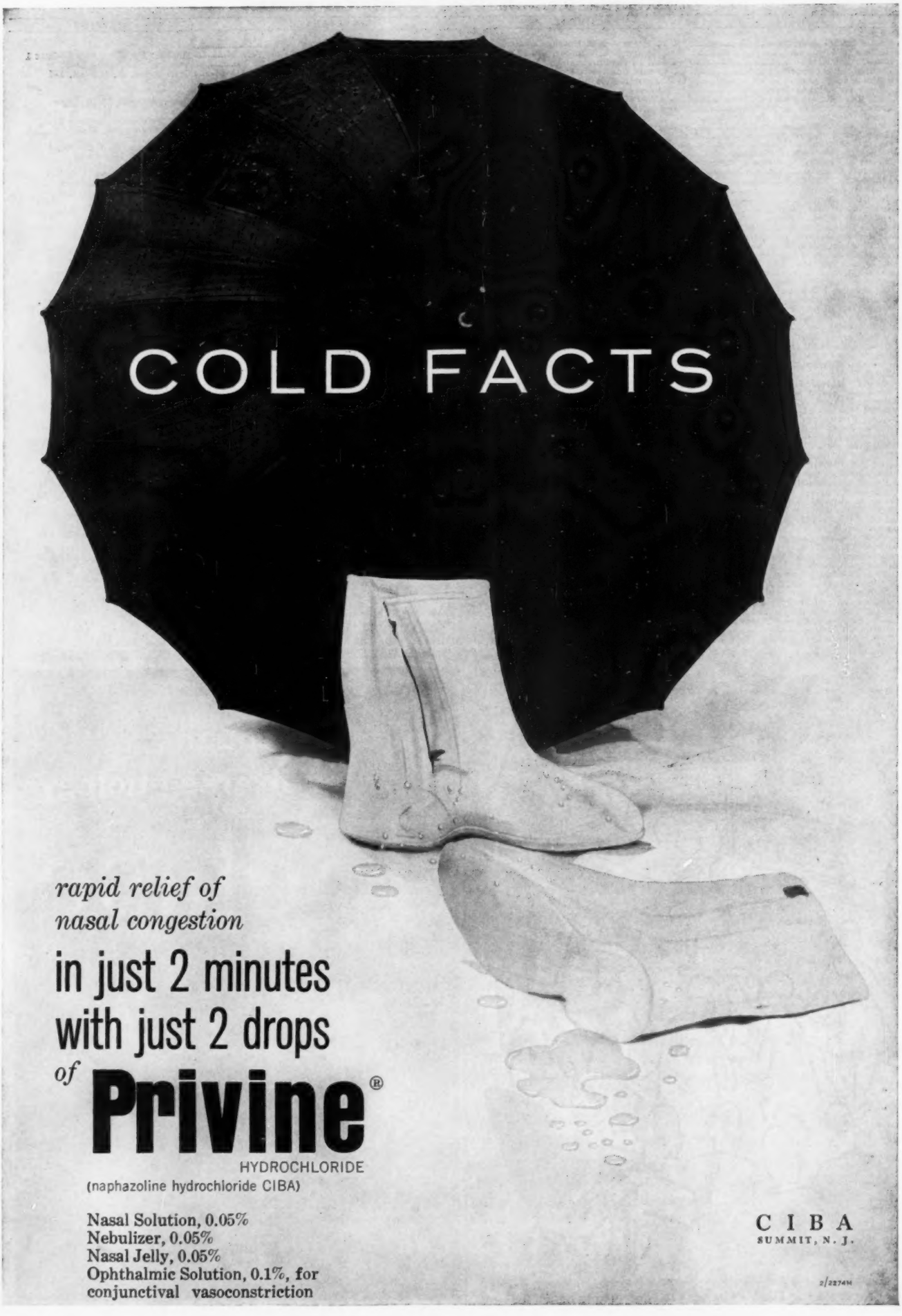

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« Washington News »

Secretary Folsom Outlines Legislative Goals • •

Hospitals Asked to Set Up Pilot Projects • •

Researchers Report New Source for Cortisone • •

President Urges More Salk Vaccine Be Used • •

SECRETARY FOLSOM OUTLINES HEALTH GOALS

In several public addresses prior to the opening of Congress, Secretary Folsom gave indication of what the administration will ask of the 85th Congress in the health field. The administration's 1957 legislative goals will be outlined by the President in his State of the Union message scheduled for delivery in January. The Secretary of Health, Education, and Welfare says the administration will ask for funds to help medical schools build classrooms. During the last session the administration requested 250 million dollars for a five-year program of grants for laboratory facilities and classrooms. Congress appropriated instead 90 million dollars for three years, limited to research facilities. "We are going to recommend again that they expand that to bring it up to the full $250 million to include both teaching and research facilities because the medical schools not only do much with medical research but they train the scientists and the doctors," he declared.

As another means of encouraging expansion of voluntary health insurance, the administration will again ask Congress to authorize pooling arrangements between smaller insurance companies so that they might expand coverage. Late in the last session, Mr. Folsom's department sponsored a bill to waive antitrust laws for these companies, but it was introduced too late for action. In recent weeks Mr. Folsom has cited rapid gains being made in voluntary insurance covering major medical expenses, generally after the first $100 has been paid by the insured. When coupled with basic coverage, catastrophic insurance affords a family adequate protection, he has poined out.

Mr. Folsom also has indicated the department will ask for more funds for the next fiscal year than the 2.2 billion dollars voted by the last Congress. That figure included 1.3 billion dollars to the states for public assistance. Taking cognizance of the possibility of new demands on the budget for defense purposes, Mr. Folsom declared: "While we must maintain this defense posture . . . we want to be very careful that we don't let down on expenditures in the field of health, education, and welfare. . . . We have got to look out for our human resources." On social security changes, Mr. Folsom said the administration felt there was no need for any action, at least on old-age benefits.

From the Washington Office of the American Medical Association.

PILOT PROJECTS FOR STUDY OF FACILITIES

A government advisory committee has requested that hospitals set up a number of pilot projects through which a study could be made of facilities and services for patients who need only limited care. The committee, appointed in September by Secretary Folsom and headed by Dr. Russell Nelson of Johns Hopkins Hospital, made its recommendations after reviewing preliminary facts assembled by the Department of Health, Education, and Welfare. Of the proposed hospital projects, the committee says: "These new types of units would be designed to provide a basis for further study of ways to improve care for these patients, perhaps at lower costs than would otherwise be possible."

Dr. Nelson says the committee at present is confining its consideration to the needs of three specific groups of patients: (*a*) those convalescing from acute illness, (*b*) those convalescing from chronic illness, and (*c*) those requiring only diagnostic services and facilities.

On long-range objectives, Dr. Nelson declares: "The aim of the committee is to obtain from the pilot studies practical recommendations which can be adapted with minimum cost by virtually any hospital or community to establish facilities for patients needing only limited care. On the basis of these findings, we hope agencies concerned with hospital and medical care—especially voluntary agencies—will be better able to develop similar facilities and services to meet their own needs."

NEW SOURCE FOR CORTISONE

A plant that grows in profusion in parts of Texas and is often fatal to sheep and goats promises a new, cheap, and entirely domestic source for cortisone. The Department of Agriculture, identifying the plant as Agave lecheguilla, gives this explanation: "This unwanted weed is the most promising native plant yet found to yield substances that can be converted to contisone. . . . Chemists of USDA's Agricultural Research Service have discovered in the plant a substance known as smilagenin, from which cortisone can be made by chemical means. Although higher yielding plant-sources of cortisone-like drugs have been found, this one is potentially important because it grows in such profusion within the nation's borders. It covers thousands of square miles in the Big Bend region of Texas."

PRESENT PLENTIFUL SUPPLY OF SALK VACCINE

President Eisenhower has joined Secretary Folsom in urging young adults to have Salk vaccine injections immediately in an effort to reduce the incidence of poliomyelitis next season. Secretary Folsom reported to the President that at present 17,000,000 doses of the vaccine are lying unused in drug manufacturers' ware-

(Continued on page 23)

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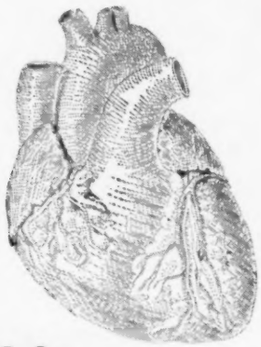
formerly known as Digoxin 'B.W. & Co.'®



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A pure, stable, crystalline glycoside isolated from Digitalis lanata...

(cont'd) ↗

BURROUGHS WELLCOME & CO. (U.S.A.) INC., Tuckahoe, New York

Washington News—Continued

houses. In addition the vaccine is stockpiling in drugstores and doctors' offices. Besides urging the inoculation of young adults, the Secretary recommended that "millions of children who have so far received only one or two injections should be given the additional protection provided by the recommended three doses."

Today, Mr. Folsom pointed out, the large supply of Salk vaccine provides the way to prevent paralysis or even death. The present danger is public apathy, which can be overcome by "earnest and vigorous cooperation of parents, physicians, schools, officials at all levels of government and public and private health agencies."

Recently the Commerce Department approved the export of 29,300 doses of Salk vaccine for Hungarian refugees. The shipment, enough to inoculate about 15,000 children and young persons, is being rushed to Vienna for distribution by the International Rescue Committee. The Pitman-Moore Company of Indianapolis donated the vaccine.

MEDICAL CARE COSTS

Medical care costs, which are computed in the nation's cost of living figures, rose 1.5% during the third quarter of this year, according to the Bureau of Labor Statistics. Fees charged by physicians, however, rose only 0.8% during the three-month period ending in September, the government agency reported. The over-all increase in the cost of living was 0.7% for the period.

The Bureau of Labor Statistics said medical care costs when drugs were excluded increased 0.9% in the third quarter. Fees charged by surgeons showed one of the smallest increments: 0.5%. General practitioners' fees rose 0.8% while obstetric care was up 1.7%. Major factors in bringing the over-all medical care index higher during that period were a 3.2% rise in hospital rates and a 3.9% increase in group hospitalization fees. Prescriptions and drugs rose 0.7% and dentists fees, 0.16%.

BUSINESS AND A REHABILITATION PROGRAM

Private business cannot "sit smugly back and assume that some governmental agency or institution will find the way" to rehabilitate the rapidly increasing number of disabled persons, according to an article in the U. S. Chamber of Commerce publication, American Economic Security.

The author, W. Scott Allan, points out that the present statistics of the National Safety Council list 1,900,000 work accidents in 1955 with a cost in labor hours and medical expenses of 3.5 billion dollars. The Bureau of Labor Statistics estimates that between 5 and 6 million persons of working age in the United States have disabilities that hinder their finding jobs.

The future trend "toward including the degenerative conditions, such as heart disease, arthritis and the like, under workmen's compensation, together with the recognized aging of our general as well as our working populations, means greater burdens for industry and insurance in the future," the author writes.

Mr. Allan finds that the solution to the problem is a sound rehabilitation program with business interests the focal point of community planning. Industry must train personnel officers to understand the injured worker's needs and capabilities. Community planning, plant programs, and educational campaigns can help achieve "restoration of a disabled individual to a useful and productive life . . . a goal which is economically and socially sound."

INTERNATIONAL SCIENTIFIC CONFERENCE

An international conference on scientific information is scheduled for November, 1958, in Washington, D. C., under sponsorship of the National Science Foundation, the National Academy of Sciences–National Research Council, and the American Documentation Institute. Preliminary plans for the session were made at a meeting of 50 scientists and experts in documentation, meeting at the National Academy of Sciences in Washington. Participation will be restricted to specialists in the fields to be covered by the agenda, but observers will be welcomed if they register in advance. The plan is to limit the delegate list to 150, including authors of papers and members of review panels. Copies of all papers will be mailed to delegates at least two months in advance of the conference.

PENSONNEL

Paul B. Murphy, food specialist with the Bureau of Indian Affairs, will direct an American Red Cross program for feeding Hungarian refugees. He already is on duty in Salzburg, Austria. . . . Senator Bricker is preparing a new version of his amendment, for which he will ask White House support. The objective is to forbid the signing of treaties that interfere with state or local rights. An earlier version, opposed by the Eisenhower administration, lost out in the Senate in 1954. . . . Major Gerald Champlin is the first Army doctor to complete a course at the Navy Deep Diving School. The ultimate objective is to provide Army divers with doctors who understand the special medical problems of deep-sea diving.

MISCELLANY

The first federal old-age and survivors insurance checks have already reached 300,000 women in the 62 to 64 age group. They became eligible for payments under the recent amendment to the social security law lowering the age from 65. . . . The VA advises that the best Christmas gifts for veterans who will spend the holiday season as patients in Veterans Administration hospitals are visits from friends and relatives or a long letter from home. . . . The Navy Bureau of Medicine and Surgery is planning a symposium late in January to acquaint field representatives with Bureau policy and the Bureau with field problems. . . . Two Public Health Service scientists, Drs. Daniel Steinberg and Donald S. Frederickson, report they have found a way to control in laboratory animals the natural production of cholesterol.

(cont'd)

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ELIXIR PEDIATRIC: 0.05 mg. in each cc.

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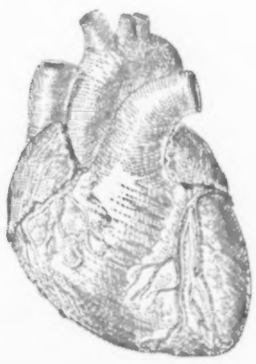

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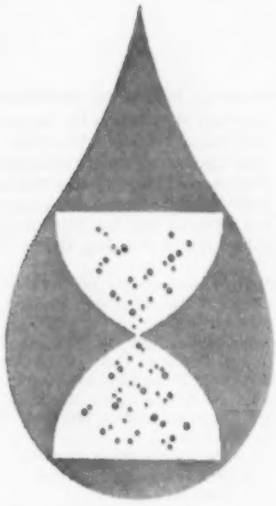

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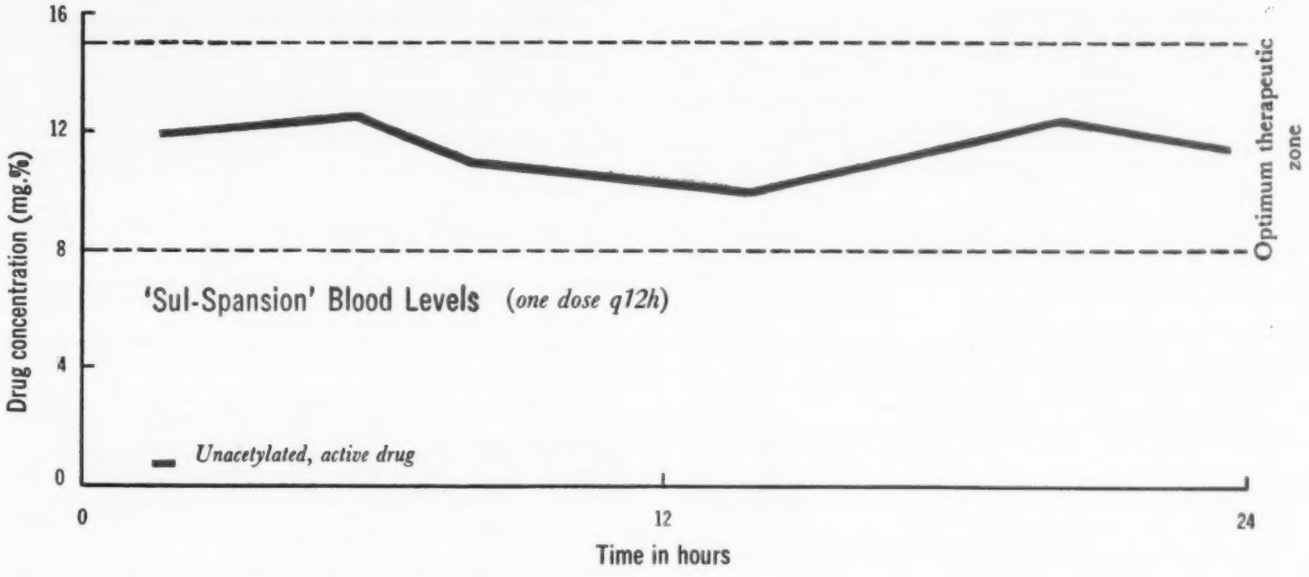

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MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.
1957 Annual Meeting, New York, June 3-7.
1957 Clinical Meeting, Philadelphia, Dec. 3-6.
1958 Annual Meeting, San Francisco, June 23-27.
1958 Clinical Meeting, Minneapolis, Dec. 2-5.
1959 Annual Meeting, Atlantic City, June 8-12.
1959 Clinical Meeting, Dallas, Texas, Dec. 1-4.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Biltmore Hotel, Los Angeles, Feb. 4-6. Dr. B. Dixon Holland, 535 North Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 10-12. Dr. Edward L. Turner, 535 North Dearborn St., Chicago 10, Secretary.

AMERICAN ACADEMY OF ALLERGY, Statler Hotel, Los Angeles, Feb. 4-6. Mr. James O. Kelley, 208 East Wisconsin Avenue, Milwaukee 2, Executive Secretary.

AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS, Palmer House, Chicago, Jan. 26-31. Mr. John K. Hart, 116 S. Michigan Ave., Chicago 3, Executive Secretary.

AMERICAN COLLEGE OF RADIOLOGY, Drake Hotel, Chicago, Feb. 8-9. Mr. William C. Stronach, 20 North Wacker Drive, Chicago 6, Executive Secretary.

AMERICAN SOCIETY FOR SURGERY OF THE HAND, Palmer House, Chicago, Jan. 25. Dr. George S. Phalen, Cleveland Clinics, 2020 East 93d St., Cleveland 6, Secretary.

NEUROSURGICAL SOCIETY OF AMERICA, Palm Springs, Calif. Jan. 16-19. Dr. Frank P. Smith, Strong Memorial Hospital, Crittenden Blvd., Rochester, N. Y., Secretary.

NORTHWEST SOCIETY FOR CLINICAL RESEARCH, Seattle, Jan. 19. Dr. Arthur L. Rogers, 1216 S. W. Yamhill St., Portland 5, Ore., Secretary.

OHIO VALLEY PROCTOLOGIC SOCIETY, Sheraton-Gibson Hotel, Cincinnati, Jan. 11-12. Dr. A. Gerson Carmel, 214 Doctors Bldg., Cincinnati 2, Secretary.

REGIONAL MEETINGS:

AMERICAN COLLEGE OF PHYSICIANS:
Colorado, Colorado Springs, Jan. 18-19. Dr. C. Wesley Eisele, 4200 East 9th Ave., Denver 20, Chairman.
Delaware, Wilmington, Feb. 9. Dr. Ward W. Briggs, 1026 North Jackson St., Wilmington 2, Chairman.
Eastern Pennsylvania, Philadelphia, Jan. 18. Dr. Thomas M. McMillan, 330 South Ninth St., Philadelphia 7, Governor.

AMERICAN COLLEGE OF SURGEONS:
Louisiana, New Orleans, Jung and Roosevelt Hotels, Feb. 4-7. Dr. Howard R. Mahorner, 2030 St. Charles Ave., New Orleans 13, Chairman.
Puerto Rico, San Juan, Caribe-Hilton Hotel, Jan. 17-18. Dr. Jose A. Noya Benitez, 301 Avenue de Diego, Santurce, P. R., Chairman.

WESTERN SOCIETY FOR CLINICAL RESEARCH, Carmel-by-the-Sea, Calif., Jan. 31-Feb. 2. Dr. Arthur J. Seaman, 3181 S.W. Sam Jackson Park Rd., Portland 1, Ore., Secretary.

FOREIGN AND INTERNATIONAL

ASSEMBLY OF ASSOCIATION OF FRENCH SPEAKING DOCTORS, Great Hall, Faculty of Medicine, 85 Boulevard Saint-Germain, Paris, France, Oct. 16-18, 1957. For information address: General Secretary, Congrés Francais de Médecine, Prof. G. Boudin, Paris, France.

CANADIAN MEDICAL ASSOCIATION, Edmonton, Alberta, Canada, June 17-21, 1957. Dr. A. D. Kelly, 150 St. George Street, Toronto 5, Ont., Canada, General Secretary.

COLLEGE OF GENERAL PRACTICE, Sheraton-Mt. Royal Hotel, Montreal, P. Q., Canada, March 4-6, 1957. Dr. W. V. Johnston, 176 St. George St., Toronto 5, Ont., Canada, Executive Director.

CONFERENCE OF ALL INDIA MEDICAL LICENTIATES ASSOCIATION, Delhi, India, Dec. 18-20, 1956. Dr. B. B. Lal Dikshit, Dikshit Niwas, Rakabganj, Agra., India, Secretary.

CONGRESS OF FRENCH CHAPTER, International College of Surgeons, Reims, France, May 31-June 1, 1957. Dr. Darget, 17 rue Casteja, Bordeaux (Gironde) France, Secretary General.

CONGRESS OF FRENCH SOCIETY OF OPHTHALMOLOGY, Paris, France, May 12-16, 1957. Dr. Marcel Kalt, 81 rue Saint-Lazare, Paris 9e, France, Secretary.

CONGRESS OF INTERNATIONAL ANESTHESIA RESEARCH SOCIETY, Phoenix, Ariz., U. S. A., April 1-4, 1957. For information address: Dr. A. William Friend, Wade Park Manor, Cleveland 6, Ohio, U. S. A.

CONGRESS OF INTERNATIONAL ASSOCIATION FOR STUDY OF THE BRONCHI, Lisbon, Portugal, May 25-26, 1957. For information address: Prof. F. Lopo de Varvalho, 138 rua de Junqueira, Lisbon, Portugal.

CONGRESS OF INTERNATIONAL SOCIETY FOR CELL BIOLOGY, St. Andrews, Fife, Scotland, Aug. 28-Sept. 3, 1957. Prof. H. G. Callan, Bell Pettigrew Museum, The University, St. Andrews, Fife, Scotland, Secretary General.

CONGRESS OF INTERNATIONAL SOCIETY OF ORTHOPEDIC SURGERY AND TRAUMATOLOGY, Barcelona, Spain, Sept. 16-21, 1957. For information address: International Society of Orthopedic Surgery and Traumatology, 34, rue Montoyer, Brussels, Belgium.

CONGRESS OF INTERNATIONAL SOCIETY OF SURGERY, Mexico City, Mexico, Oct. 27-Nov. 2, 1957. Dr. L. Dejardin, 141, rue Belliard, Brussels, Belgium, General Secretary.

CONGRESS OF INTERNATIONAL UNION AGAINST TUBERCULOSIS, New Delhi, India, Jan. 7-11, 1957. For information address: International Union Against Tuberculosis, 13 rue Pomerue, Paris 16e, France.

FRENCH CONGRESS OF OTOLARYNGOLOGY, Faculte de Medecine de Paris, Paris, France, Oct. 15-18, 1957. For information address: Administrative Secretary, French Congress of Otolaryngology, 17, Rue de Buci, Paris, France.

HEALTH CONGRESS OF ROYAL SOCIETY FOR THE PROMOTION OF HEALTH, Folkestone, Kent, England, April 30-May 3, 1957. Mr. P. Arthur Wells, 90 Buckingham Palace Road, London, S.W.1, England, Secretary.

INTER-AMERICAN CONGRESS OF PAN AMERICAN MEDICAL ASSOCIATION, Mexico City, Mexico, Nov. 18-22, 1957. Dr. Joseph J. Eller, 745 Fifth Ave., New York 22, N. Y., U. S. A., Executive Director.

INTERIM CONGRESS OF PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY, Hotel Statler, New York, N. Y., U. S. A., April 7-10, 1957. Dr. Brittain F. Payne, 17 East 72nd Street, New York 21, N. Y., U. S. A., President.

INTERNATIONAL CONFERENCE ON AUDIOLOGY, Chase Hotel, St. Louis, Mo., U. S. A., May 13-16, 1957. For information address: Dr. S. Richard Silverman, Central Institute for the Deaf, 818 South Kingshighway, St. Louis, Mo., U. S. A.

INTERNATIONAL CONFERENCE ON THE INFLUENCE OF LIVING AND WORKING CONDITIONS ON HEALTH, Cannes, France, Sept. 27-29, 1957. For information address: Secretariat, World Congress of Doctors, Vienna 1, Wollzeile 29/3, Austria.

INTERNATIONAL CONGRESS ON THE BIOLOGY OF THE HAIR FOLLICLE AND THE GROWTH OF HAIR, Royal Society of Medicine, London, England, Aug. 7-9, 1957. Dr. G. H. Bourne, London Hospital Medical College, Whitechapel, London E.1, England, Hon. Secretary.

INTERNATIONAL CONGRESS OF CLINICAL PATHOLOGY, Brussels, Belgium, July 15-20, 1957. Prof. M. Welsch, Service de Bacteriologie et de Parasitologie, Universite de Liege, 32 Blvd., de la Constitution, Liege, Belgium, Secretary General.

INTERNATIONAL CONGRESS OF DERMATOLOGY, Stockholm, Sweden, July 31-Aug. 6, 1957. Dr. C. H. Floden, Karolinska, Sjukhuset, Hudkliniken, Stockholm 60, Sweden, Secretary General.

INTERNATIONAL CONGRESS OF ELECTROENCEPHALOGRAPHY AND CLINICAL NEUROPHYSIOLOGY, Brussels, Belgium, July 21-28, 1957. For information address: Dr. R. G. Bickford, Mayo Clinic, Rochester, Minnesota, U. S. A.

INTERNATIONAL CONGRESS OF EUROPEAN SOCIETY OF HAEMATOLOGY, Copenhagen, Denmark, Aug. 26-31, 1957. Dr. Aage Videbask, Blegdamsvej 11, Copenhagen, Denmark, Secretary General.

INTERNATIONAL CONGRESS OF INTERNATIONAL SOCIETY OF ANGIOLOGY, Mexico City, Mexico, Oct. 29-Nov. 2, 1957. Dr. H. Haimovici, 105 East 90th Street, New York 28, New York, U. S. A., Secretary General.

INTERNATIONAL CONGRESS OF INTERNATIONAL SOCIETY OF BRONCHOESOPHAGOLOGY, Philadelphia, Pennsylvania, U. S. A., May 12-13, 1957. Dr. Chevalier L. Jackson, 3401 North Broad St., Philadelphia 40, Pennsylvania, U. S. A., Secretary.

INTERNATIONAL CONGRESS ON MEDICAL AND SCIENTIFIC FILM, Palace of Expositions at the Valentino, Turin, Italy, June 1-9, 1957. For information address: Secretariat, Minerva Medica. Corso Bramante 83-85, Turin, Italy.

INTERNATIONAL CONGRESS ON MEDICINE AND SURGERY, Palazzo of Expositions at the Valentino, Turin, Italy, June 1-9, 1957. For information address: Segreteria Generale, Minerva Medica. Corso Bramante 83-85, Turin, Italy.

INTERNATIONAL CONGRESS OF MILITARY MEDICINE AND PHARMACY, Beograd and Opatija, Yugoslavia, Sept. 29-Oct. 5, 1957. Colonel Dr. Aleksandar Mezic, rue Nemanjina 15, Beograd, Yugoslavia, Secretary General.

INTERNATIONAL CONGRESS OF NEUROLOGICAL SCIENCES, Brussels, Belgium, July 21-28, 1957. For information address: Dr. Pearce Bailey, National Institute of Health, Bethesda 14, Maryland, U. S. A.

INTERNATIONAL CONGRESS OF NEUROPATHOLOGY, Brussels, Belgium, July 21-28, 1957. Dr. Ludo Jan Bogaert, 47 rue de l'Harmonic, Antwerp, Belgium, Secretary General.

INTERNATIONAL CONGRESS OF NEUROSURGERY, Brussels, Belgium, July 21-28, 1957. For information address: Dr. William B. Scoville, 85 Jefferson Street, Hartford, Connecticut, U. S. A.

INTERNATIONAL CONGRESS OF NUTRITION, Paris, France, July 24-29, 1957. For information address: Congress International de Nutrition, 71 Blvd. Pereire, Paris 17e, France.

INTERNATIONAL CONGRESS ON OCCUPATIONAL HEALTH, Helsinki, Finland, July 1-6, 1957. Dr. Pertti Sumari, c/o Tyoter Veyslaitos, Haattmaninkatu 1, Helsinki-Toolo, Finland, Secretary General.

INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY, Hotel Statler, Washington, D. C., U. S. A., May 5-10, 1957. Dr. Paul H. Holinger, 700 North Michigan Ave., Chicago 11, Illinois, U. S. A., General Secretary.

INTERNATIONAL CONGRESS OF PHOTOBIOLOGY, Torino, Italy, June 2-8, 1957. For information address: Prof. Enrico Benassi, Dept. of Radiology, University of Torino, Torino, Italy.

INTERNATIONAL CONGRESS ON RHEUMATIC DISEASES, Toronto, Ont., Canada, June 23-28, 1957. For information address: International Congress on Rheumatic Diseases, P. O. Box 237, Terminal "A," Toronto, Ont., Canada.

INTERNATIONAL CONGRESS FOR SOCIAL MEDICINE, Vienna, Austria, May 31-June 2, 1957. Secretariat: Prof. Dr. T. Antoine, Vienna 9, Spitalgasse 23, Austria.

INTERNATIONAL GERONTOLOGICAL CONGRESS, Merano-Bolzano, Italy, July 14-19, 1957. For information address: Segreteria, Quarto Congresso Internazionale de Gerontologia, Viale Morgagni, 85, Firenze, Italy.

INTERNATIONAL LEAGUE AGAINST EPILEPSY, Brussels, Belgium, July 21-28, 1957. Dr. Radermecker, Institut Bunge, 59 rue Philippe Milliot, Berchem, Antwerp, Belgium, Secretary General.

INTERNATIONAL NEUROLOGICAL CONGRESS, Brussels, Belgium, July 21-28, 1957. Dr. Ludo Jan Bogaert, Institut Bunge, 59 rue Philippe Milliot, Berchem, Antwerp, Belgium, Secretary General.

(Continued on page 28)

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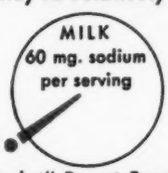

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INTERNATIONAL SCIENTIFIC CONGRESS OF INTERNATIONAL COLLEGE OF SURGEONS, University City, Mexico, D. F., Mexico, Feb. 24-28, 1957. For information address: Secretary, Mexican Congress, International College of Surgeons, 1516 Lake Shore Drive, Chicago 10, Ill., U. S. A.

INTERNATIONAL SOCIETY OF GEOGRAPHICAL PATHOLOGY, Paris, France, July 9-12, 1957. Dr. Fred C. Roulet, Hebelstr. 24, Basel, Switzerland, Secretary General.

INTERNATIONAL SOCIETY FOR THE WELFARE OF CRIPPLES, London, England, July 22-27, 1957. For information address: Miss M. Drury, 34 Eccleston Square, London S.W.1, England.

INTERNATIONAL SYMPOSIUM ON MEDICAL-SOCIAL ASPECTS OF SENILE NERVOUS DISEASES, Venice, Italy, July 20-21, 1957. For information address: Secretariate, Viale Morgagni 85, Firenze, Italy.

INTERNATIONAL VOICE CONFERENCE (LARYNGEAL RESEARCH FUNCTION AND THERAPY), Chicago, Illinois, U. S. A., May 20-22, 1957. For information address: Dr. Hans von Leden, 30 North Michigan Ave., Chicago 2, Illinois, U. S. A.

NEURORADIOLOGIC SYMPOSIUM, Brussels, Belgium, July 21-28, 1957. For information address: Professor Melot, Hôpital Universitaire St. Pierre, Brussels, Belgium, Secretary General.

LATIN AMERICAN CONGRESS OF OTORHINOLARYNGOLOGY AND BRONCHOESOPHAGOSCOPY, Lima, Peru, S. A., April 15-30, 1957. Dr. Jose Daris Torres, Av. Gmo. Prescott 240, Orrantia, Lima, Peru, S. A., Secretary General.

PACIFIC SCIENCE CONGRESS, Bangkok, Thailand, Nov. 18-Dec. 2, 1957. For information address: Pacific Science Council Secretariat, Bishop Museum, Honolulu 17, Hawaii.

PAN AMERICAN CONGRESS ON CANCER CYTOLOGY, Eden Roc Hotel, Miami Beach, Fla., U. S. A., April 25-29, 1957. Dr. J. Ernest Ayre, 1155 N.W. 14th St., Miami, Fla., U. S. A., General Chairman.

PAN AMERICAN CONGRESS OF ENDOCRINOLOGY, Buenos Aires, Argentina, Nov. 3-9, 1957. For information address: Secretaria General, Sociedad Argentina de Endocrinologia y Metabolisms, Santa Fe 1171, Buenos Aires Argentina.

PAN-PACIFIC SURGICAL CONGRESS, Honolulu, T. H., Nov. 14-22, 1957. Dr. F. J. Pinkerton, Room 230, Young Bldg., Honolulu, T. H., Director General.

WILLIAM HARVEY TERCENTENARY CONGRESS, Royal College of Surgeons, London, England, June 3-7, 1957. Dr. D. Geraint James, Harveian Society of London, 11 Chandos St., Cavendish Square, London, W.1, England, Honorary Secretary.

WORLD CONGRESS FOR ACUPUNCTURE, Vienna, Austria, May 25-28, 1957. For information address: Austrian Association for Acupuncture, XV, Schwenderstrasse 37, Vienna, Austria.

WORLD CONGRESS OF PSYCHIATRY, Zurich, Switzerland, Sept. 1-7, 1957. Prof. J. Wyrsch, Stans, Lucerne, Switzerland, Secretary General.

WORLD MEDICAL ASSOCIATION, Istanbul, Turkey, Sept. 29-Oct. 5, 1957. Dr. Louis H. Bauer, 10 Columbus Circle, New York 19, New York,

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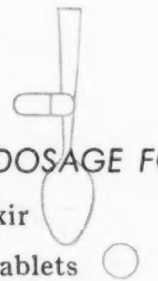

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From other Pages

Science and the Humanities in Education

A debate on the motion "That Science can provide as Good an Education as the Humanities" was . . . held in the Senate House of the University of London. . . . In the course of the debate, it was evident that there was some shift of targets, according to whether the speakers on either side were thinking of education chiefly at the school-level, or whether higher education was included and even specifically aimed at. . . . When essential school subjects such as English language and literature, geography and history have been provided for, and highly desirable subjects such as at least one foreign language and mathematics have been included, the distributable periods for more science or for other subjects are in practice quite limited. . . . Premature specialization is deplorable both for scientists and for non-scientists. . . . Certain grave sources of weakness arise from the more mechanical practices of humanistic school teaching. Instead of giving real access to Greek and Roman civilization, all too often there is a prolonged and clumsy fumbling with rules of grammar and composition, and the mechanics of constructing Greek and Latin verses. . . . Instead of teaching history as a living perspective of human thought and action, schools often concentrate on kings and queens and concubines and sometimes on archbishops and heretics. . . . The main influences which affect the moral and social education of a man come from outside his formal instruction and are essentially independent of the choice of his main subjects of study. A university student specializing in science . . . has to work very hard to master a large amount of factual material. . . . At first, science students appear to become more narrow, more specialized and even rather duller than their humanistic contemporaries; but at the postgraduate stage, after this novitiate in science, a great breadth of interests is discernible; comparisons at this level are by no means unfavorable to a scientific university education. In the research laboratory, both the critical faculties and creative power of students receive their maximum encouragement. This stimulation of the restless spirit of inquiry, and its real satisfaction by research, is an unforgettable educational experience. A positive advantage is the large element of practical work involving skilled use of the hands, which is an undoubted source of satisfaction to so many scientists. . . .

Some of the most compelling problems of our age [were listed], in order to point out that an education based exclusively on science could make the best contribution to their solution in only very few instances. These were: (a) the spiritual and moral crisis of Western civilization; (b) the conflict between Christianity and materialism; (c) international tension; (d) the growth of the power of the State and the tendency to sacrifice liberty for equality; (e) the evil power of certain dictators or oligarchs over men's minds, with the possibilities of "brain washing"; (f) industrial strife, with special reference to current policies of "beggar my neighbour" and certain aspects of trade union politics; (g) world population and food supplies; (h) education for leisure, shortening of the working day, the development of automation; (i) the triumph of ugliness and Philistinism. Those opposing conceded that science trains the quantitative measuring faculty in the broadest sense. It develops human capacities for observation and experimentation, especially in the quantitative fields of experience. Popular use of the word "scientific" to mean "rationally argued" is, however, very superficial. Even where science can provide or suggest solutions to current problems, scientific training does not develop the faculty of arguing about opinions, or of persuading human behavior. Both the emotions and the artistic sense are highly important for sound living, and are left wholly uneducated by science. . . . Each of the speakers, whether for or against the motion, made it clear that no support should be given to a humanistic education without access to science and the experimental method, or to an education that was wholly scientific without access to a training in values.—A. R. Ubbelohde, The Place of Science and the Humanities in Education, *Nature*, May 26, 1956.

The Origin of Life

Probably no question in biology has a wider appeal than this one. . . . Historically the basic difficulty has been to define "life." Up to the 17th century the most primitive forms of life known were worms, fleas, scorpions and the like, and there was a notion that these creatures originated spontaneously from decaying organic matter. This idea was demolished in 1668 by the Italian physician Francesco Redi, when he showed that no maggots developed in meat shielded from egg-laying insects. But it was reborn at another level when, a few years later, Anton van Leeuwenhoek discovered bacteria. They seemed so small and rudimentary that many people were convinced they must be on the dividing line between living and non-living matter. Actually bacteria are just as complex as any cell of our own bodies, and their spontaneous origin from non-living material is not much more likely than the spontaneous generation of scorpions.

Nowadays many biologists and biochemists tend to regard the question of how life started as essentially meaningless. They view living and non-living matter as forming a continuum, and the drawing of a line between them as arbitrary. Life, on this view, is associated with the complex chemical paraphernalia of the cell-enzymes, membranes, metabolic cycles, etc.—and no one can say at what point it begins. Geneticists are apt to take a different view. If genes are required to produce enzymes, then life began only when they began. We can imagine the spontaneous origin of some chemical substance capable of reproducing itself, of mutating and of directing the production of specific catalysts in its environment. It would not be long before this substance, trying out new molecular arrangements by blind mutation, began to evolve along lines favored by natural selection. In time all the complexity that is now associated with living matter might well develop. It may be objected that an unstated assumption is hidden in this theory: namely, that the gene arose in an environment which was already prepared to supply all the materials needed for its multiplication and other chemical activities. But if this is an objection, it holds for any theory which supposes that life began in some accidental combination of chemicals. The material of life as we know it could have come into being only in a complex chemical environment.—N. H. Horwitz, The Gene, *Scientific American*, October, 1956.

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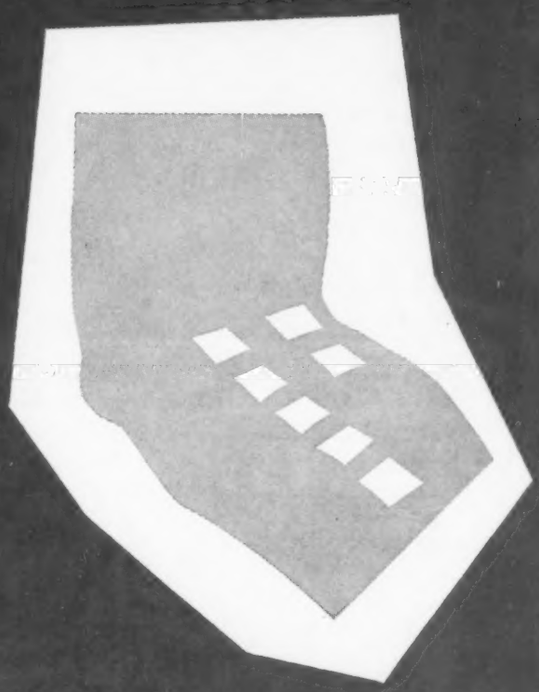

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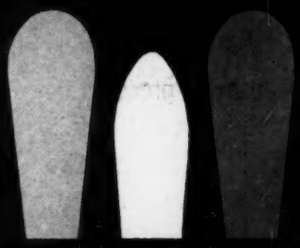

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For vaginal mycosis.

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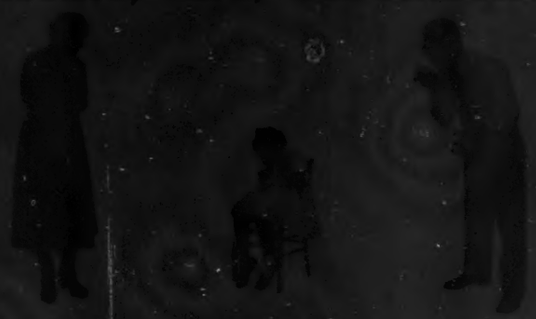

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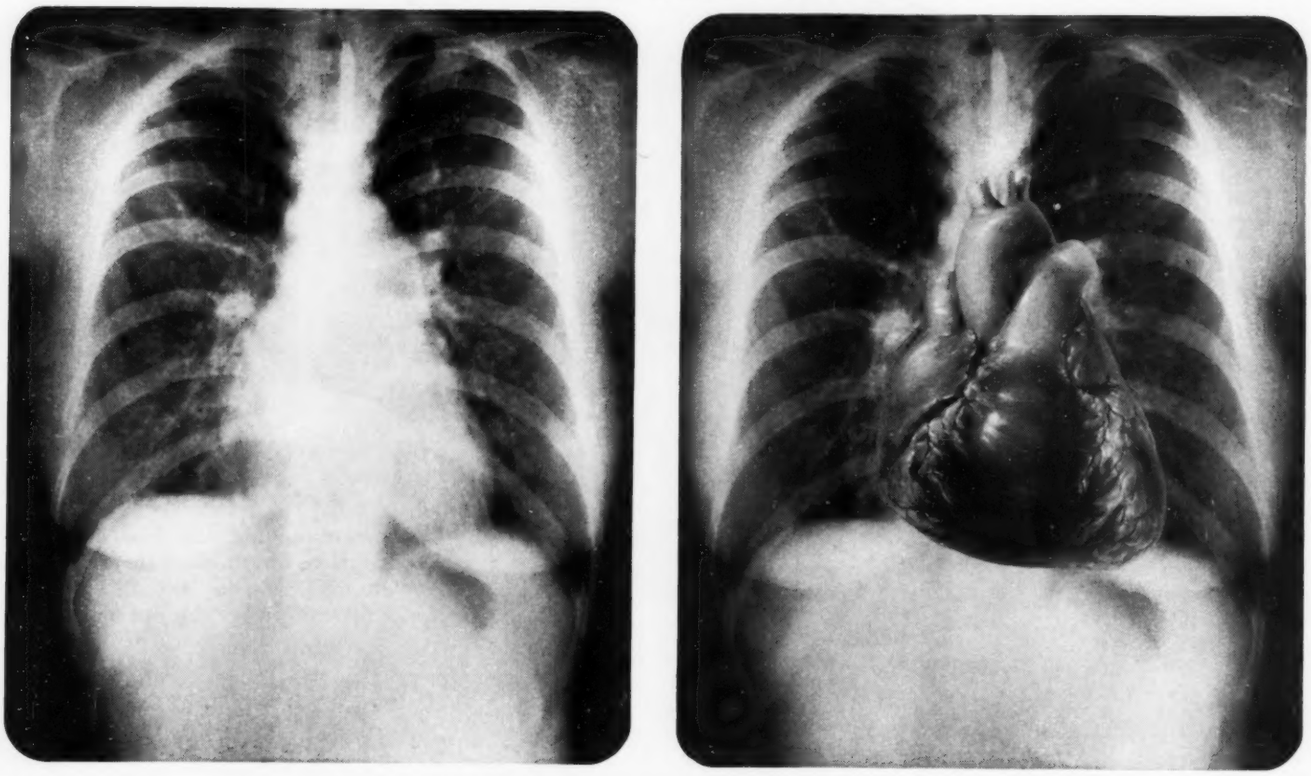

RHEUMATIC HEART DISEASE • MITRAL STENOSIS AND INSUFFICIENCY

ROENTGEN CONFIGURATION—Postero-anterior examination—moderate heart enlargement—right ventricular enlargement—prominence of pulmonary artery segment.

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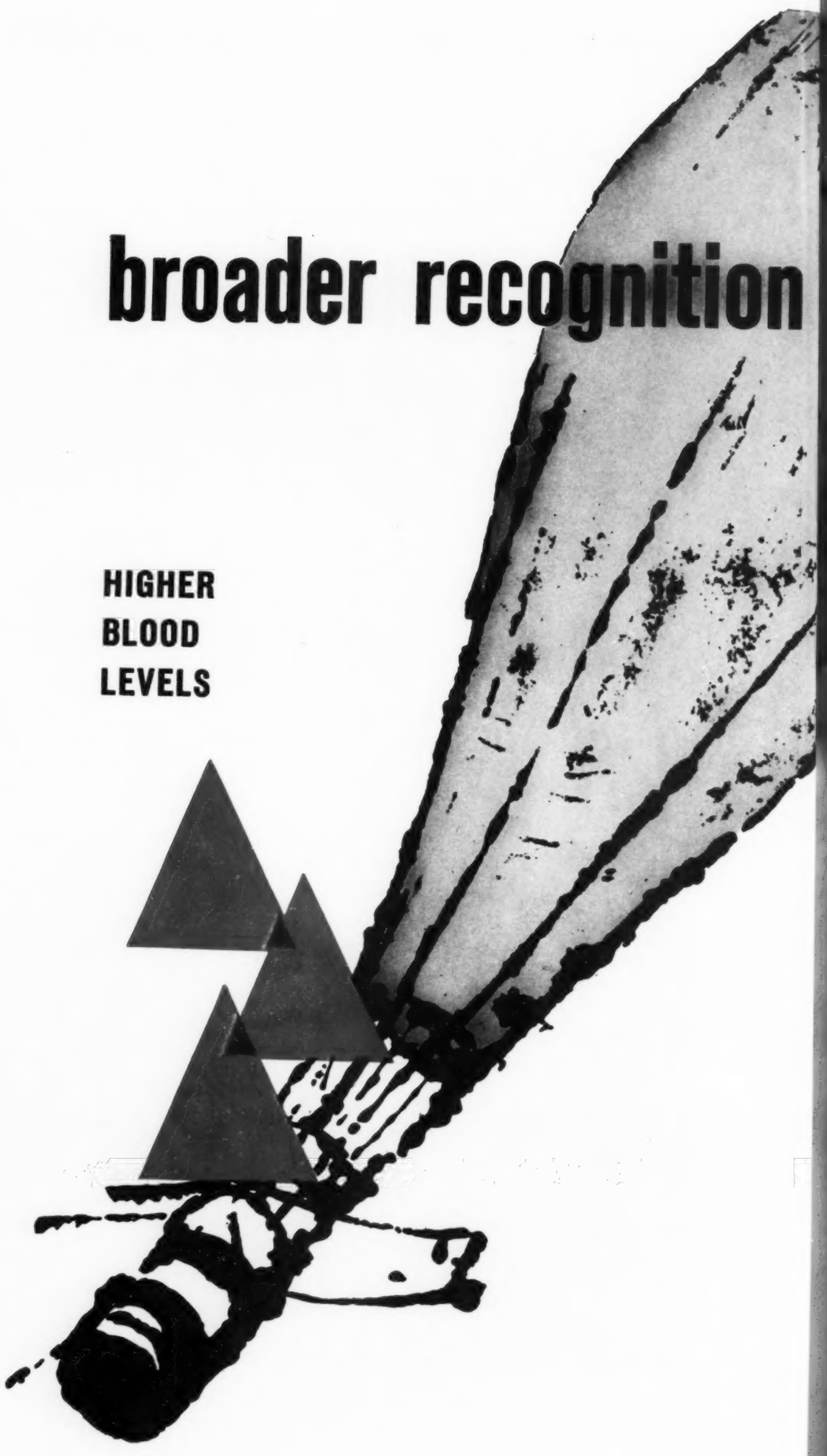

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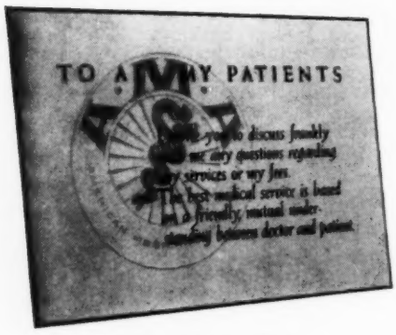

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(1) Abrahamsen, E. H., and Baird, H. W., III: J.A.M.A. *160*:749 (Mar. 3) 1956.

(2) Amols, W.: J.A.M.A. *160*:742 (Mar. 3) 1956.

(3) Rodriguez-Gomez, M.; Valdes-Rodriguez, A., and Drew, A. L.: J.A.M.A. *160*:752 (Mar. 3) 1956.

(4) Smith, R. T.; Kron, K. M.; Peak, W. P., and Hermann, I. F.: J.A.M.A. *160*:745 (Mar. 3) 1956.

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FLEXIN is sufficiently safe

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"When it [FLEXIN] was administered orally in doses of 250 to 500 mg. three and four times a day, 14 of 18 patients with spasticity due to spinal cord lesions showed objective improvement of spasticity."[3]

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requirements

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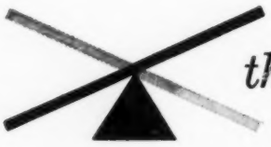
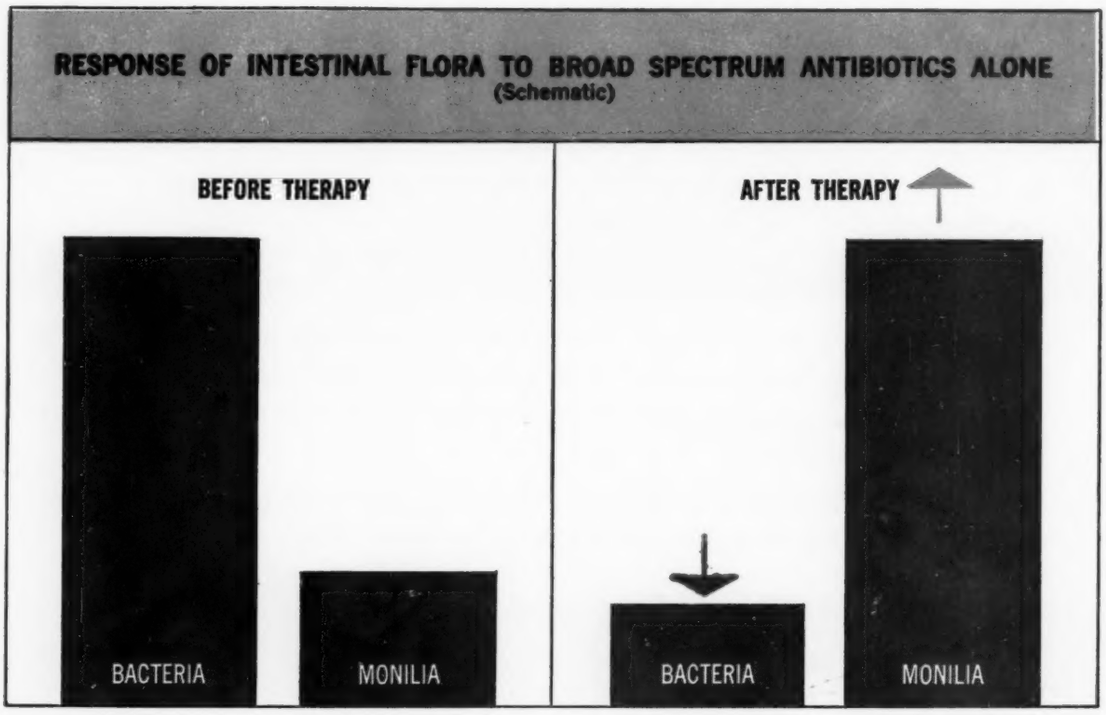


the "see-saw" antimicrobial effect of broad spectrum antibiotics



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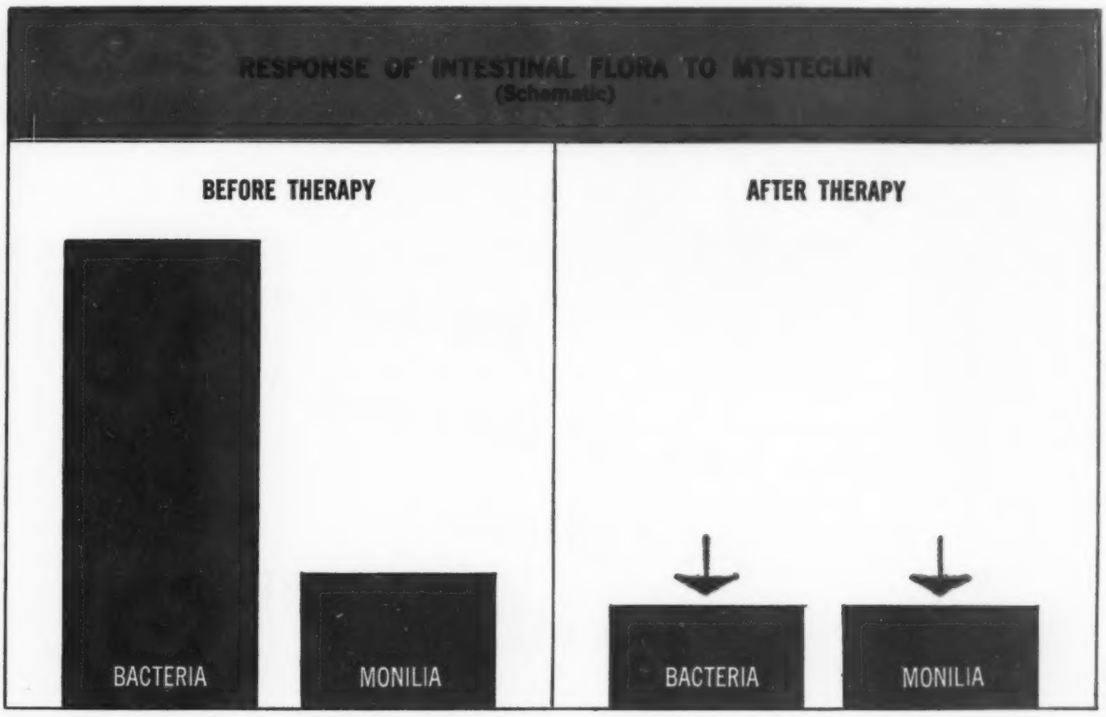

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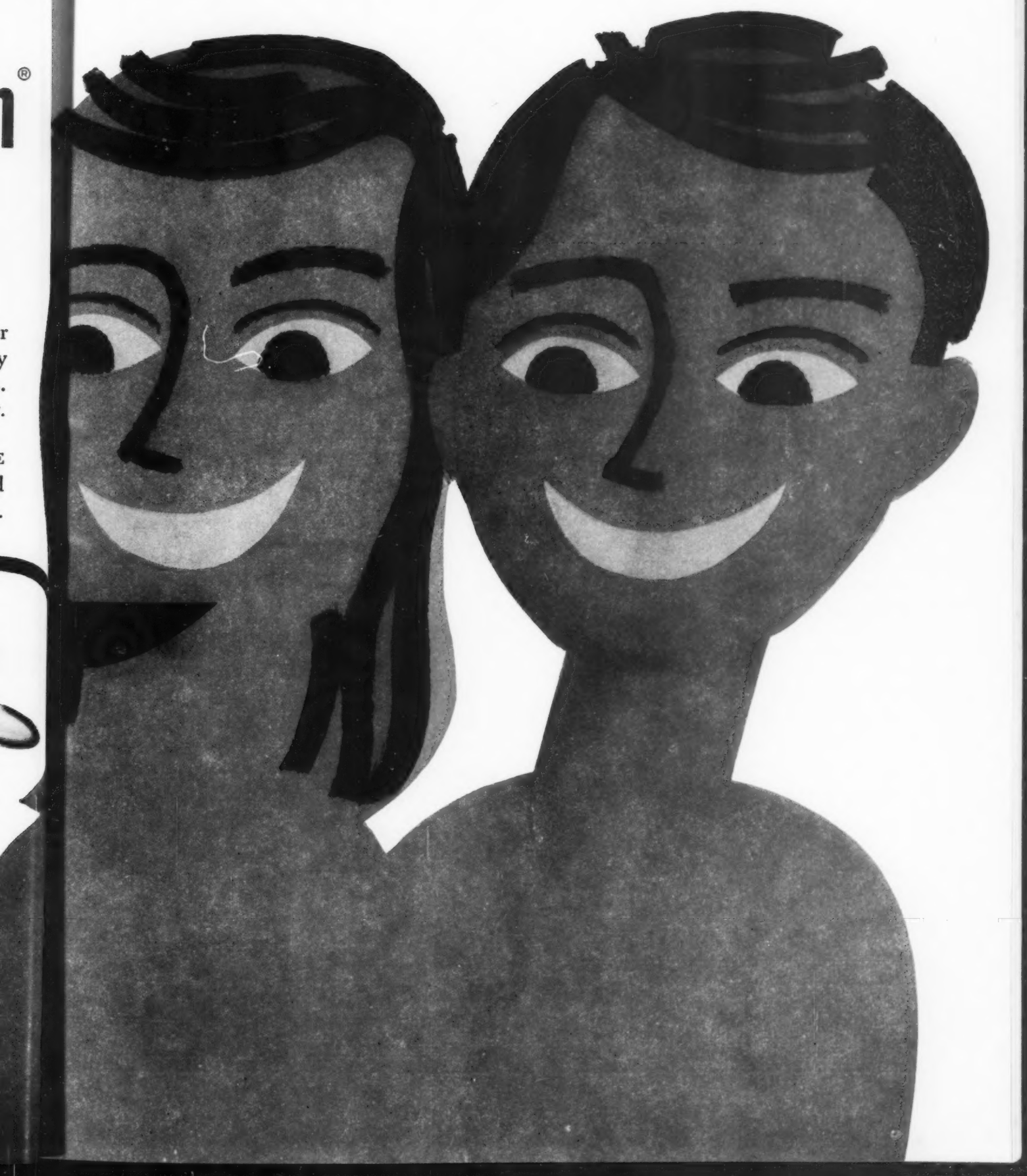

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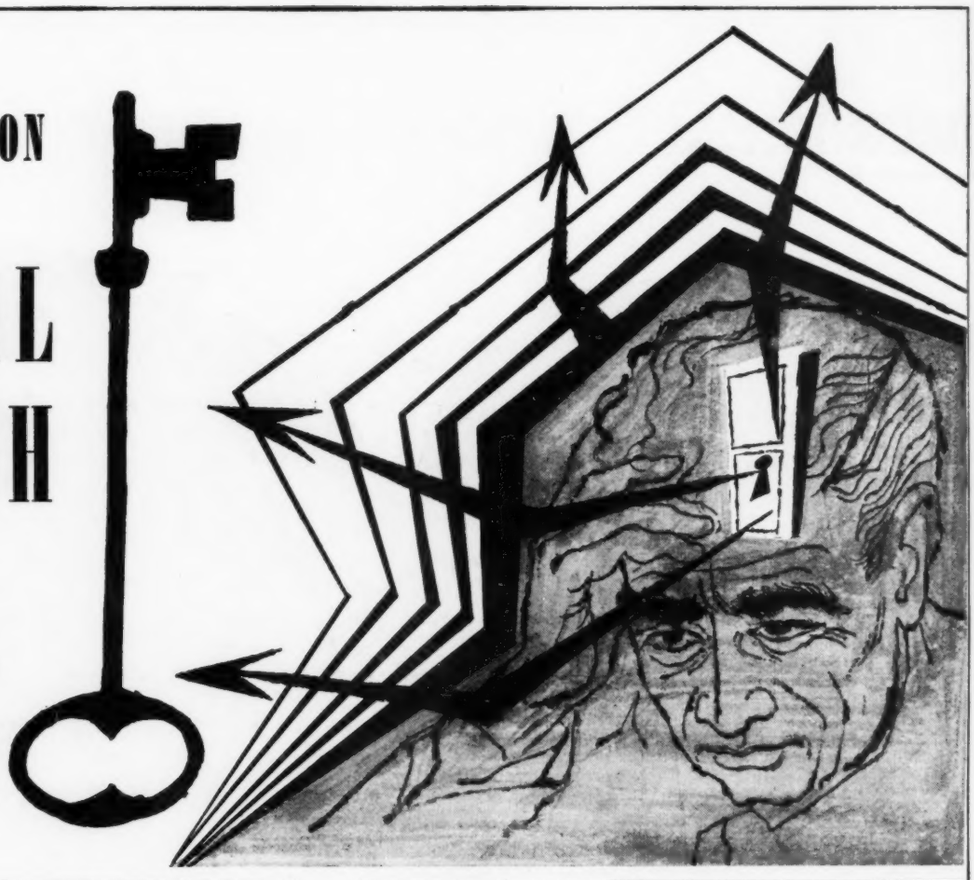

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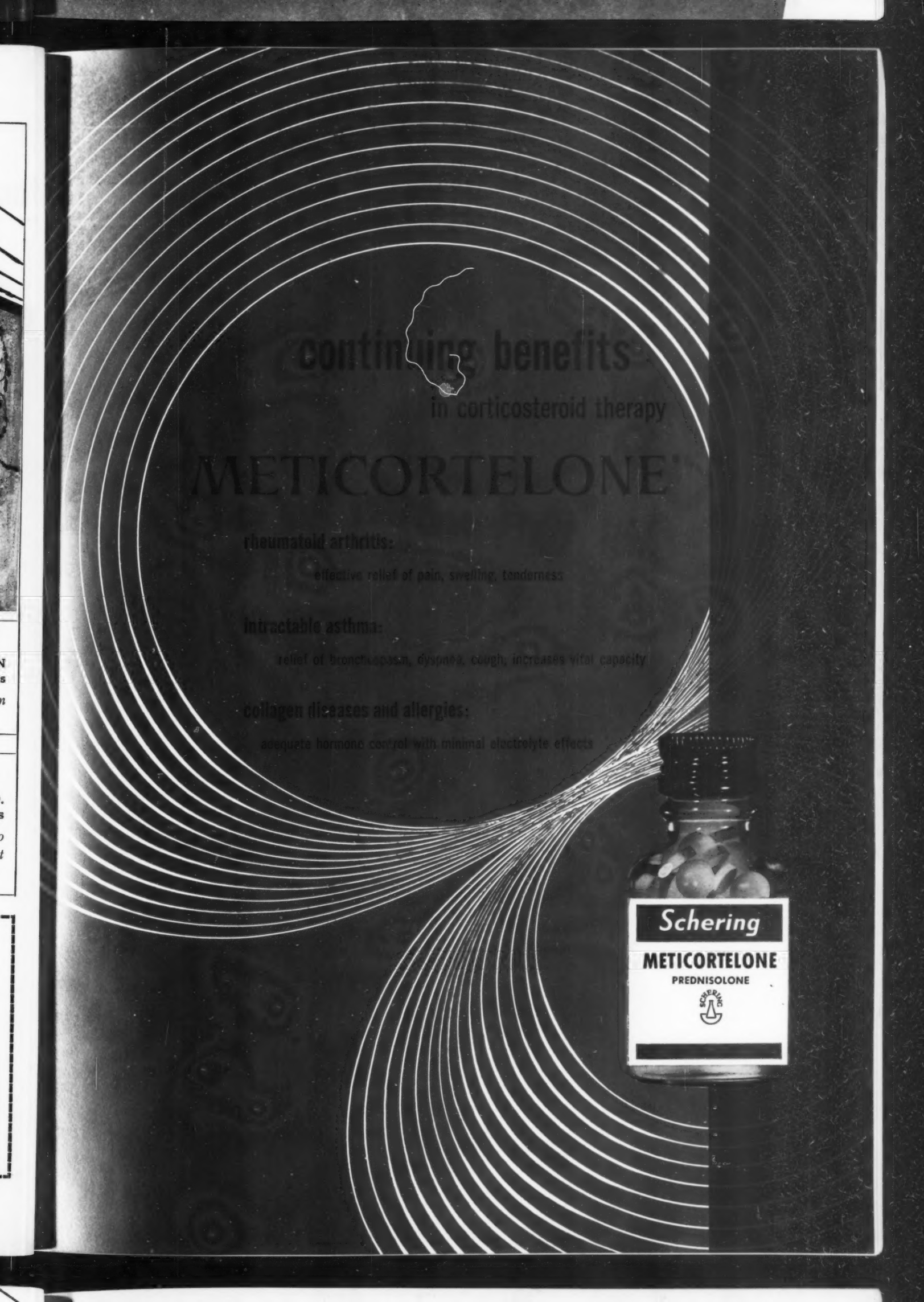
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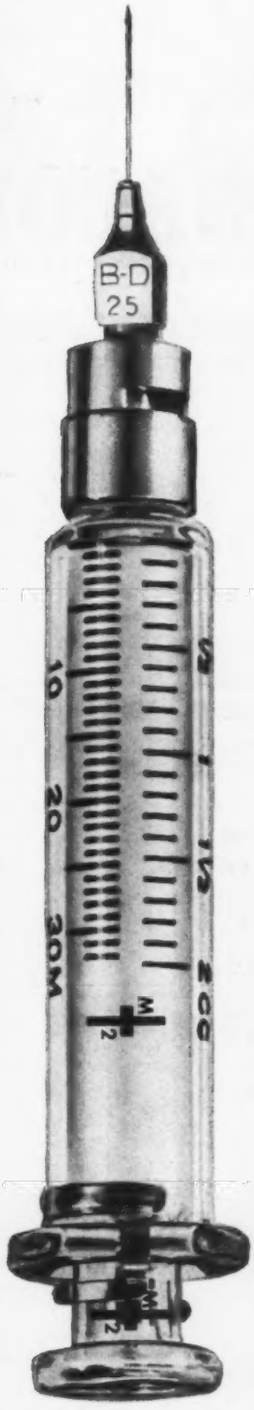

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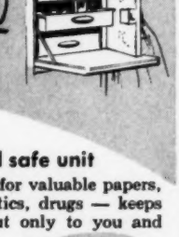

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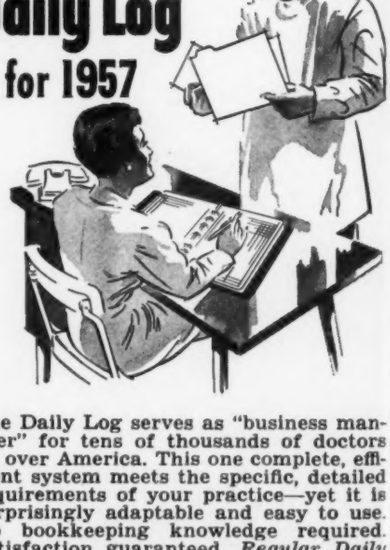

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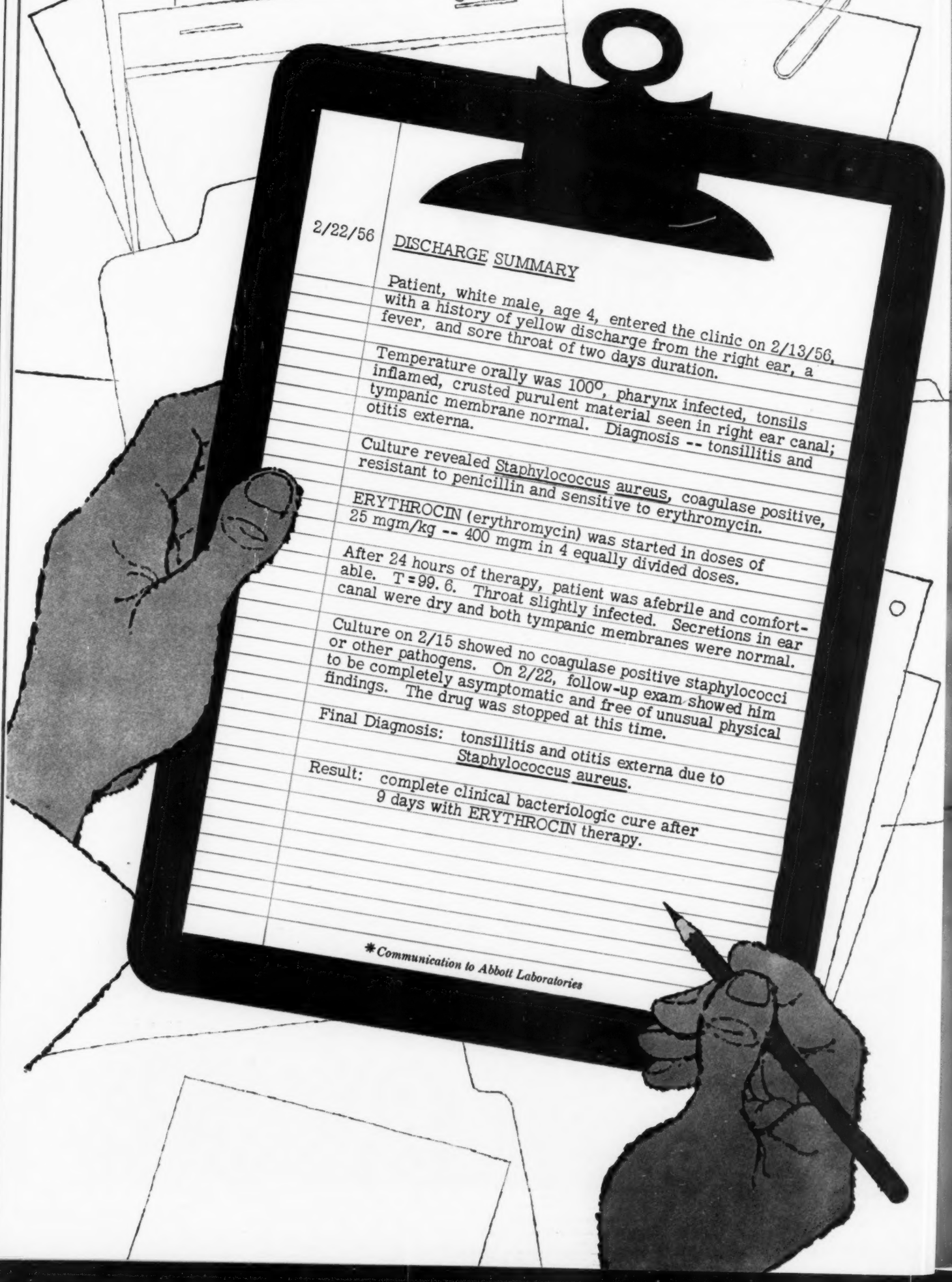
Erythrocin in treating tonsillitis and otitis externa*



2/22/56

DISCHARGE SUMMARY

Patient, white male, age 4, entered the clinic on 2/13/56, with a history of yellow discharge from the right ear, a fever, and sore throat of two days duration.

Temperature orally was 100°, pharynx infected, tonsils inflamed, crusted purulent material seen in right ear canal; tympanic membrane normal. Diagnosis -- tonsillitis and otitis externa.

Culture revealed Staphylococcus aureus, coagulase positive, resistant to penicillin and sensitive to erythromycin.

ERYTHROCIN (erythromycin) was started in doses of 25 mgm/kg -- 400 mgm in 4 equally divided doses.

After 24 hours of therapy, patient was afebrile and comfortable. T=99.6. Throat slightly infected. Secretions in ear canal were dry and both tympanic membranes were normal.

Culture on 2/15 showed no coagulase positive staphylococci or other pathogens. On 2/22, follow-up exam showed him to be completely asymptomatic and free of unusual physical findings. The drug was stopped at this time.

Final Diagnosis: tonsillitis and otitis externa due to Staphylococcus aureus.

Result: complete clinical bacteriologic cure after 9 days with ERYTHROCIN therapy.

*Communication to Abbott Laboratories

"clinical response good or excellent"

In one recent study, 18 patients with acute follicular tonsillitis and septic sore throat, were given erythromycin. Infecting organism was *Str. pyogenes*. The investigator stated, *"In all 18, the clinical response could be regarded as either good or excellent."*[1]

This, of course, is only one of many reports showing the effectiveness of ERYTHROCIN against coccic infections. You'll get the same good results (nearly 100% in common, bacterial respiratory infections) when your prescription reads *Filmtab* ERYTHROCIN Stearate.

"toxicity lower in erythromycin-treated patients"

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Idem p. 30.

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References:
1. Moyer, J. H., et al.: Drug Therapy of Hypertension: Preliminary Observations on the Clinical Use of Mecamylamine (A Ganglionic Blocking Agent) in Combination with Rauwolfia for the Treatment of Hypertension, Med. Rec. & Ann. *49*:390 (Sept.) 1955.
2. Sturgis, C. C., et al.: Advances in Internal Medicine, J. Michigan M. Soc. *55*:154 (Feb.) 1956.

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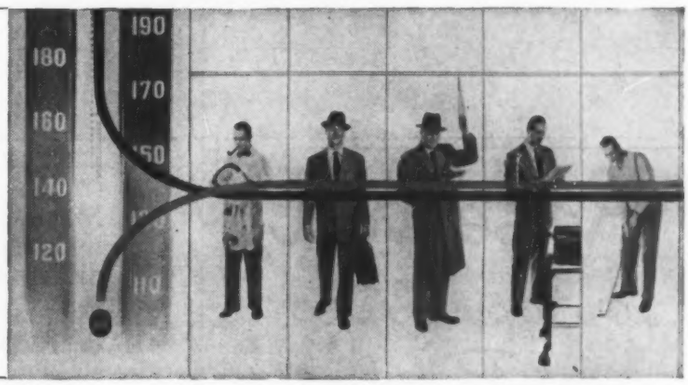

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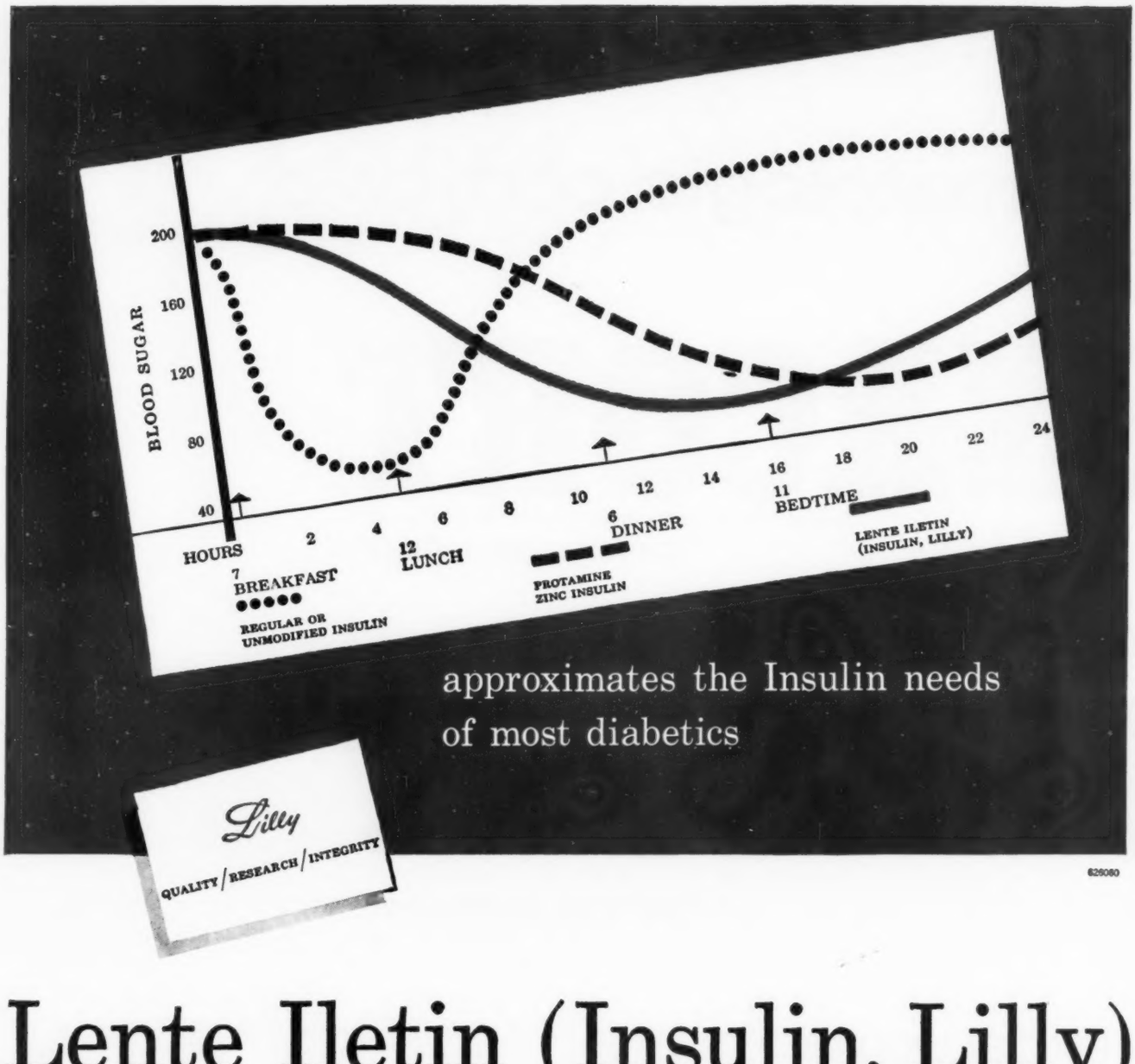

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ADVANCED MAMMARY CANCER TREATED WITH SEX HORMONES

Edward F. Lewison, M.D., Frances H. Trimble, M.D.
and
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* *Estrogens were compared with androgens as to their effects on 133 patients with advanced mammary cancer. Estrogens should not be used for this purpose in women less than five years past the menopause; when properly used they were found to be somewhat superior to the androgens in their objective effects on lesions in soft tissues and viscera. The androgens were somewhat more potent by subjective critera. Both androgens and estrogens gave a sense of well-being and partial or complete relief of pain in about half of the patients. Regression of the tumor sometimes occurs also upon discontinuation of hormone therapy that has been ineffective or has ceased to maintain an initial improvement. Full use should be made of these profound and gratifying palliative effects of hormone therapy.*

Mammary cancer is an all-too-common universal tragedy—malign and monstrously destructive of human life. Morbidity studies for each sex in the United States [1] indicate that the age-adjusted incidence rate for cancer of the breast is considerably higher than for any other specific primary site. The breast is by far the most frequent single female organ attacked by cancer. The incidence of mammary cancer represents 21.7% of all cancers in females, and it is the leading cause of death among women in the midperiod of life, from 40 to 60 years of age.[2] It is readily apparent that in the total care of mammary cancer the palliative treatment of advanced, recurrent, and metastatic disease by means of hormone therapy has become a problem of major magnitude in clinical management. The purpose of this presentation is to describe the results of sex steroid therapy in a series of patients with this disease.

Historical Review

The intimate relationship between the breasts and ovaries was recognized without being understood for many years before the isolation of the sex hormones and the elucidation of the complex pattern of endocrine interrelationships. The earliest reported attempts to influence mammary carcinoma by physiological means were described by Beatson [3] in 1896. He had become interested in lactation in 1876 and, having observed that the cellular proliferation and desquamation of lactation were associated with a temporary cessation of ovarian activity, he hoped that a similar degeneration of epithelial cells would follow removal of the ovaries. To reinforce this effect, he administered thyroid extract to his patients postoperatively. This method of treating recurrent carcinoma of the breast was followed in Britain for many years, but, as it was never endorsed with any enthusiasm by the influential German school, its popularity waned. At a later date, castration by the simpler method of irradiation was reintroduced and in some clinics is employed as a routine in premenopausal patients with axillary metastases at the time of operation.

Meanwhile, experimental work on ovarian function was proceeding, due to the impetus given by Lathrop and Loeb,[4] who demonstrated first in 1916 the decrease in incidence of spontaneous mammary carcinoma in mice after oophorectomy. During the next decade, progress was made in the isolation of the ovarian hormones as well as in the recognition of the various components of the pituitary complex. Administration of these hormones to experimental animals suggested a cause-and-effect relationship between estrogens and mammary carcinoma, a relationship that could sometimes be altered by the use of androgens. Loeser was the first to use this observation clinically and administered androgens postoperatively to patients with mammary cancer and a strong family history of carcinoma. The dramatic results obtained in the treatment of prostatic carcinoma by castration and estrogen therapy, as outlined by Huggins and Hodges,[5] stimulated interest in this new form of chemotherapy.

The employment of estrogens in the treatment of carcinoma of the breast appears paradoxical and stems from the observations of Haddow [6] in 1935 that certain benzanthracene derivatives, already shown to have carcinogenic properties, dramatically inhibited a cer-

From the Breast Clinic, Division of the Tumor Clinic, Department of Surgery, Johns Hopkins Hospital and Johns Hopkins University.

tain type of rat tumor. Zondek, a pioneer in the field of endocrine physiology, in 1936 suggested the use of estrogens in breast carcinoma in an effort to suppress the secretion of gonadotropins and the growth hormone (somatotropin) from the anterior pituitary. Scattered reports of experience with estrogen therapy appeared from various centers in Britain and the United States over the years, with results that were sufficiently encouraging for experimentation with the newer compounds to continue.

The more recent approach to the problem of altering the hormone pattern really begins where Beatson left off. It has been demonstrated both in experimental animals and in human subjects that in time adrenal hyperplasia follows oophorectomy. Estrogens are produced by the adrenals, and frequently progression of the disease follows. Huggins and Bergenstal[7] suggested bilateral adrenalectomy to eliminate this secondary source of estrogen production, and about 40% of patients undergoing that procedure, mainly those who have responded favorably to oophorectomy originally, show a good but temporary response. A less formidable method of achieving a similar result is by giving cortisone, a method that is receiving careful investigation at the present time. The most recent approach, and one that appears more logical, is the operation of hypophysectomy, whereby the source of both gonadotropins and somatotropin is eliminated. The present status of this operation, with a review of about 50 patients, has recently been presented by Kennedy, Peyton, and French.[8]

Mode of Action of Sex Hormones

As is well known, the hypophysis, or pituitary gland, regulates the endocrine system of the body and is itself controlled by the hypothalamus. Throughout the reproductive years there is a delicate balance between the production of gonadotropins from the hypophysis and the sex steroids from the gonads. The reproductive system, which includes the breasts, is normally controlled by the follicle-stimulating hormone (FSH), luteinizing hormone (LH), and prolactin produced by the pituitary and the gonadal hormones estrogen, androgen, and progesterone.

In general, any increase in the amount of a particular pituitary hormone (or tropin) will lead to hyperplasia of the target gland and an increase in production of its hormones. Conversely, a deficiency in the amount of a given tropin will result in atrophy of the target organ. The administration of a target gland hormone inhibits the production of the corresponding tropin and usually alters the production of other pituitary hormones. For example, the administration of thyroid extract inhibits the secretion of thyrotropin and the follicle-stimulating hormone and stimulates the production of the other tropic hormones. The administration of testosterone inhibits the production of gonadotropic and adrenotropic hormones; an excess of estrogens inhibits the production of follicle-stimulating hormone but stimulates that of luteinizing hormone and prolactin. All cells in the body are affected by the thyroid and growth hormones, whereas the gonadal hormones influence specific metabolic processes and tissues, chiefly the reproductive system.

When castration is performed in the premenopausal subject, there is a sudden withdrawal of estrogenic compounds. Frequently this leads to a dramatic improvement in the clinical course of mammary cancer, an improvement that may persist for several months or more. However, the operation is followed by hypertrophy of the adrenals and enlargement of the pituitary gland. The adrenals are stimulated to produce estrogens by an increase in gonadotropins, and a direct stimulation of the tumor is probably produced by the increased amounts of growth hormone.

The initial effect of the absence of estrogens is to ensure a preponderance of androgens, which favors protein synthesis and osteogenesis. There is also stimulation of hematopoiesis. These same effects are obtained when androgens are administered therapeutically, as in the premenopausal patient. With the androgens acting through the pituitary, a chemical castration occurs and amenorrhea soon develops. Estrogens, however, do not completely disappear from the urine during this therapy and may be a product of androgen metabolism. The precise mode of action of the estrogen therapy used in postmenopausal patients is still not clear, but Nathanson has stated that estrogens act directly on the disease, whether in bone or in soft tissues, and that calcification and osteogenesis are secondary metabolic effects. In patients with advanced cancer of the breast tracer studies using sodium estrone sulfate labeled with radioactive sulfur (S^{35}) indicated a concentration of radioactivity in the tumor tissue.

The effect of castration, androgen, or estrogen therapy may be, as Nathanson suggested, to effect a "chemical hypophysectomy." Undoubtedly, a profound change is induced in the physiological status of the patient whereby for a time the host becomes less vulnerable to the spread of her disease and the tissues "less fit food for the cancer protozoan," as Hermann[9] postulated in 1898 in discussing oophorectomy. According to our present knowledge, this stage is time-limited and extremely variable.

Clinical Material

This study is part of a program of collaborative clinical research coordinated and sponsored by the Committee on Research of the Council on Pharmacy and Chemistry of the American Medical Association. The clinical material comprising this investigation consists of 133 women with inoperable, recurrent, or metastatic mammary cancer who received a total of 223 complete courses of hormone therapy at the breast clinic of the Johns Hopkins Hospital between June, 1947, and August, 1955.

The requisites for inclusion in this clinical investigation were formulated by the Subcommittee on Steroids and Cancer of the Committee on Research and were strictly adhered to in reporting these results. Only patients conforming to the following criteria were considered eligible for this study: First, the diagnosis of cancer of the breast must have been established by microscopic examination in all patients. Second, all patients must have had inoperable, recurrent, or metastatic disease that was no longer

amenable to accepted surgical and radiotherapeutic measures. Radical mastectomy and radiotherapy are generally regarded as the treatment of choice in cancer of the breast. Patients considered "curable" by these conventional methods of therapy were not denied such measures in favor of chemotherapeutic palliation. Third, patients must not have received surgical or radiotherapeutic castration within six months prior to the onset of hormone therapy, as castration itself has

TABLE 1.—*Treatment Schedule of 133 Patients Receiving 223 Complete Courses of Hormone Therapy*

Drug and Route	Dose	Complete Courses of Treatment, No.	
Oral			
Ethinyl estradiol	3 mg. daily	50	110 courses of androgen therapy
Chlorotrianisene (TACE)	24 mg. daily	41	
Diethylstilbestrol	15 mg. daily	9	
Parenteral			
Testosterone propionate in oil	25 mg. 3 times weekly	14	110 courses of estrogen therapy
	50 mg. 3 times weekly	3	
	100 mg. 3 times weekly	36	
	200 mg. 3 times weekly	9	
Stanolone	100 mg. 3 times weekly	17	
Testosterone cyclopentylpropionate	100 mg. once weekly	12	
Dihydrotestosterone cyclopentylpropionate	100 mg. once weekly	3	
Methylandrostenediol	100 mg. 3 times weekly	2	
Oral			
Methyltestosterone	50 mg. daily	3	
	100 mg. daily	5	
	200 mg. daily	6	
Combined therapy			
Ethinyl estradiol plus progesterone		4	13 courses of combined therapy
Ethinyl estradiol plus chlorotrianisene		1	
Ethinyl estradiol plus testosterone propionate		8	
Total		223	

long been known to be of benefit in the palliative treatment of mammary cancer. Fourth, patients must not have received radiotherapy to any lesion under observation within six months prior to the onset of hormone therapy. However, a few patients with generalized metastatic disease who received limited irradiation to local lesions were retained in the study. In these patients, only the nonirradiated lesions were observed and evaluated for their response to hormone therapy. Thus, the results of this study are believed to be independent of the effects of either castration or radiotherapy. Fifth, the minimum period of uninterrupted hormone therapy required for evaluation of results of an individual course was eight weeks. This period has been regarded as an adequate minimum time to estimate by therapeutic trial the initial effectiveness of a particular sex steroid. While some patients had only the minimum 2 months of therapy, others had continuous treatment lasting as long as 44 months. No effort was made to evaluate the results of therapy in relation to the length of time of treatment, although it is known that total dose and duration of treatment are both important. Patients who were recorded as having received more than one course of estrogens might have received the same hormone at two different periods separated by an interval of time.

Two months was carefully selected as a sufficient trial period because patients who show an objective response to therapy will do so, at least initially, by the end of that time. If regression has not begun at the end of eight weeks, our experience has shown that there is little reason to continue therapy with the same hormone over a longer period of time.

Occasional instances of "no change" (where the disease remains stationary during the period of observation) were exceedingly difficult to evaluate. Thus, it is obvious that the present series will be "weighted" with patients who have had short, nonbeneficial courses of therapy as compared to those patients showing objective improvement who have had continuous uninterrupted therapy over a long period of time.

The schedule of treatment employed in the 133 patients under study is shown in table 1. The number of courses of treatment received by each patient is as follows: 79 patients received one course of treatment, 32 patients received two, 9 patients received three, 7 patients received four, and 5 patients received five.

The particular hormone chosen for use in each patient was related to her physiological age in reference to her menopause. Prior to the menopause (whether natural or induced by irradiation or oophorectomy) and for a five-year period thereafter, the initial steroid of choice was always an androgenic hormone. After this arbitrary period (five years postmenopausal), treatment with an estrogenic hormone appeared to be decidedly more useful. However, experience has indicated that estrogens in moderate therapeutic doses when given premenopausally or in the early postmenopausal period may actually prove harmful by accelerating the course of the disease. Younger patients who fail to respond to initial androgen therapy should be given a short period of respite to allow for a "withdrawal effect" (regression of tumor that may follow the cessation of hormone therapy). After this interval these patients may be allowed a very cautious

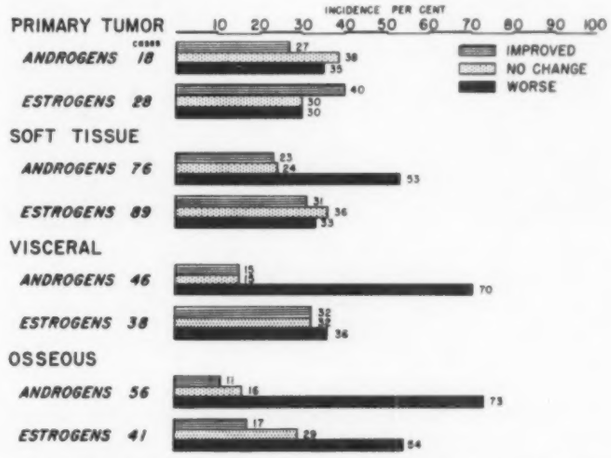

Fig. 1.—Comparison of objective results of androgen and estrogen therapy.

trial with estrogens in a desperate attempt to alter the tempo of this progressive and devastating disease. In place of estrogens, the adrenal steroids or endocrine ablation by surgery may be considered as an adjunct to hormone therapy at this stage of the therapeutic regimen. Androgen therapy can be used effectively in both premenopausal and postmenopausal patients, as it does not depend upon physiological age. Older patients failing to respond to initial estrogen therapy should receive a secondary course of androgens.

Results

Objective.—Results of therapy were compared in the following category of lesions: (1) primary, (2) soft tissue (including skin, subcutaneous tissue, and lymph nodes), (3) visceral (including pulmonary), and (4) osseous. The objective responses were recorded as improved, no change, and worse. The objective results of hormone treatment (with all treatment schedules combined and recorded as either androgen or estrogen) are shown in figure 1.

A critical evaluation of these results is difficult because of the variability in objective response as well as the inherent factor of the human equation in interpreting the findings. Patients showing definite objective improvement, even if it was followed by subsequent deterioration, were recorded as improved. On the other hand, patients whose disease appeared

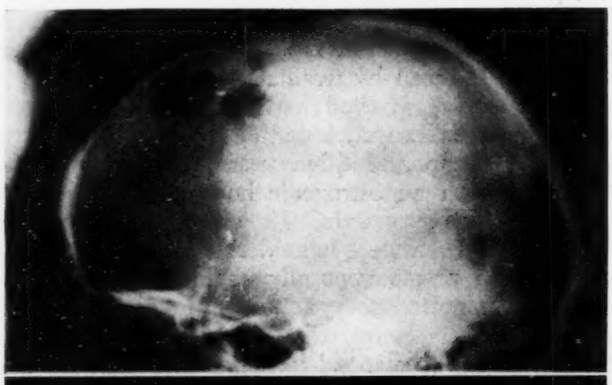

Fig. 2.—*Top,* large osteolytic skull metastases occurring while young woman was still receiving testosterone therapy. Multiple bone metastases developed after an initial favorable effect that lasted longer than one year. *Bottom,* "withdrawal effect" shown by appearance of skull in same patient 6 months after discontinuation of testosterone therapy. No medicaments given during this time. Present remission has lasted longer than one year.

to remain static for a matter of months only to get worse ultimately under continuous treatment were recorded as worse. There were six such patients in the group receiving androgens and one patient in the group receiving estrogens whose disease showed no progress for periods of 2 to 10 months before advancement occurred.

Evidence of a favorable objective response in the evaluation of osseous lesions requires both tumor regression and bone repair. This is usually characterized by the x-ray appearance of recalcification and increased density of osteolytic lesions, the re-formation of bone architecture and contour, and the healing of pathological fractures. These rather specific x-ray manifestations required for improvement may account for the relatively poor response shown by osseous lesions to hormone therapy. Occasionally, however, osteolytic bone lesions have been seen to undergo remarkable repair under hormone therapy, while new lesions develop or other osseous lesions progressed at the very same time. This paradox was observed in four

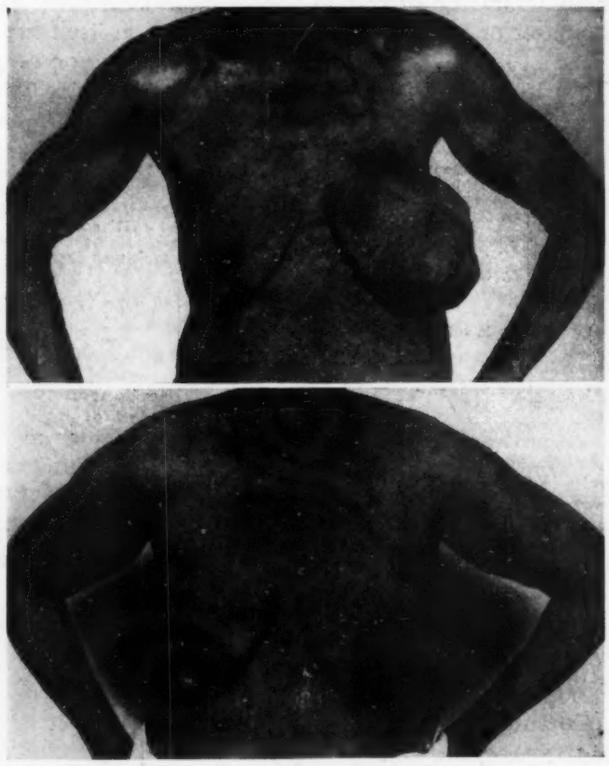

Fig. 3.—*Top,* large primary cancer of the left breast with axillary metastases. Patient considered "categorically" inoperable. *Bottom,* appearance of primary tumor in same patient after 15 months of estrogen therapy. Marked regression of primary tumor and marked improvement in general appearance of patient.

patients under androgen therapy, and such results were reported as "worse" for the purpose of this study. Apparent acceleration of the disease occurred in two patients with osseous lesions. This required cessation of androgen therapy. Acceleration of the metastatic

TABLE 2.—*Subjective Results of Sex Hormone Therapy*

	Type of Therapy			
	Androgens (110 Cases)		Estrogens (100 Cases)	
Subjective Results	No.	%	No.	%
Well-Being				
Improved	53	48	44	44
No change	27	25	37	37
Worse	30	27	19	19
Pain				
Complete relief	6	9	5	11
Partial relief	28	43	18	40
No change	8	12	3	6
Worse	23	36	19	43

process has been observed in patients receiving both androgens and estrogens, but it is relatively uncommon except in premenopausal patients receiving estrogens.

In the palliative treatment of breast cancer one must give careful consideration to the well-recognized withdrawal effect of hormone therapy. Patients in whom the disease appears to reactivate while they are still receiving sex steroid therapy may show a

marked improvement, with objective regression of the tumor, when treatment is discontinued. Huseby reported that 9 of 14 patients treated with estrogens "exhibited a second definite regression of their lesions lasting from 6 weeks to 9 months" when treatment was stopped. This phenomenon may even occur in patients who have failed to note a favorable initial

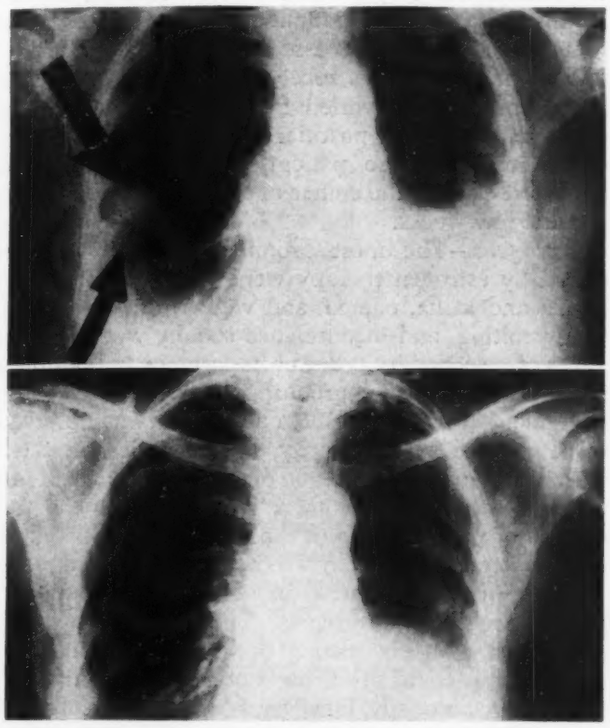

Fig. 4.—*Top*, large solitary lung metastasis in elderly woman. *Bottom*, disappearance of lung lesion after only 3 months of estrogen therapy. Patient ultimately died of liver metastases.

response to therapy. In the present series, the favorable effects of withdrawal (of which there were several striking examples [fig. 2]) could not be included in the reported results for the obvious reason that these responses were not considered to be the direct consequence of treatment with either androgens or estrogens.

The results of this study (fig. 1) indicate that soft tissue and visceral lesions show a more favorable response in those patients receiving estrogens than in those receiving androgens. This superiority is considered statistically significant, as verified by the chi-square test ($p=0.05$). These conclusions are confirmed in general by the reported results of the Subcommittee on Steroids and Cancer.[10] The summary of their findings indicates that the "effectiveness of estrogen therapy for soft tissue and lung metastases increases with the age of the patient" and that in "women five years past the menopause estrogens are the hormones of choice for the treatment of soft tissue and lung metastases" (fig. 3 and 4).

In the present study, chlorotrianisene (TACE) appeared to be significantly less effective than either ethinyl estradiol or diethylstilbestrol in the treatment of visceral metastases. This finding has been confirmed by the Subcommittee on Steroids and Cancer, which found chlorotrianisene to be "unsatisfactory as an estrogenic mammary tumor-suppressant agent." Uterine bleeding was a very common complication of therapy with chlorotrianisene. In the present study there appeared to be no statistically significant difference between the several androgens used. (In the comprehensive studies of Segaloff and co-workers, the clinically effective androgens—testosterone, stanolone [Dihydrotestosterone], and methyltestosterone—share two distinctive properties: (1) they cause a decrease in the urinary gonadotropic hormone, and (2) they cause pronounced virilization.) The tumor-suppressing effect of these drugs showed no advantage over the accepted standard of reference, namely, the effect of testosterone propionate. Long-acting androgens such as testosterone cyclopentylpropionate involve certain inherent risks in the event of complications because their action cannot be interrupted promptly.

Subjective.—The subjective responses to hormone therapy were evaluated on the basis of well-being and relief of pain. These results are shown in table 2. Although a feeling of well-being was one of the most conspicuous benefits to be noted, in our experience there appeared to be very little difference in this euphoric effect between the androgens and the estrogens. However, it is well to be cautious in evaluating subjective improvement, as many steroids are known to produce a remarkable sense of well-being as a part

TABLE 3.—*Comparison of Objective and Subjective Results of Treatment with Stanolone and Testosterone Propionate*

Objective and Subjective Responses	Results			
	Testosterone Propionate (62 Cases)		Stanolone (17 Cases)	
	No.	%	No.	%
Objective				
Primary lesion				
Improved	2	25	...	...
No change	3	37.5	1	100
Worse	3	37.5	...	...
Soft tissue				
Improved	10	24	2	22
No change	12	28	3	33
Worse	20	48	4	44
Visceral				
Improved	4	20	2	29
No change	2	10	...	...
Worse	14	70	5	71
Bone				
Improved	4	13	1	11
No change	5	16	...	...
Worse	22	71	8	89
Subjective				
Well-being				
Improved	28	55	10	59
No change	17	33	4	24
Worse	6	12	3	17
Relief of pain				
Complete relief	4	10	1	8
Partial relief	13	33	9	75
No change	3	13	1	8
Worse	17	44	1	8

of their anabolic effect. This can occur irrespective of the course of the disease and is particularly true with the androgens. All physicians are aware of the receptive mood of patients with incurable cancer. The power of hope in a patient with a hopeless disease is formidable; a mere placebo in a patient with advanced cancer may result in a remarkable subjective and spiritual improvement.

Relief of pain was a subjective response that seemed to be based upon a more tangible and well-defined effect. As Leriche has aptly said, the sensation of pain "is the resultant of the conflict between a stimulus and the whole individual." Pain usually occurred in patients who had osseous metastases, particularly to weight-bearing skeletal structures. As noted in table 2, complete or partial relief of pain occurred in 52% of the patients receiving androgens and in 51% of those receiving estrogens. However, in a small group of patients treated with stanolone, the complete and partial relief of pain appeared to be superior to that experienced with testosterone propionate (table 3), although the objective response in these two series was about the same.

Side-Effects

Although the usual side-effects of sex steroid therapy are quite well known, specific side-effects incident to intensive therapy often occur in the prolonged treatment of advanced mammary cancer with large and unphysiological doses of hormones. The incidence and degree of these side-effects are related to both the total dose and the duration of treatment, as well as to the individual sensitivity of the patient. The incidence of these characteristic side-effects of treatment is shown in figure 5.

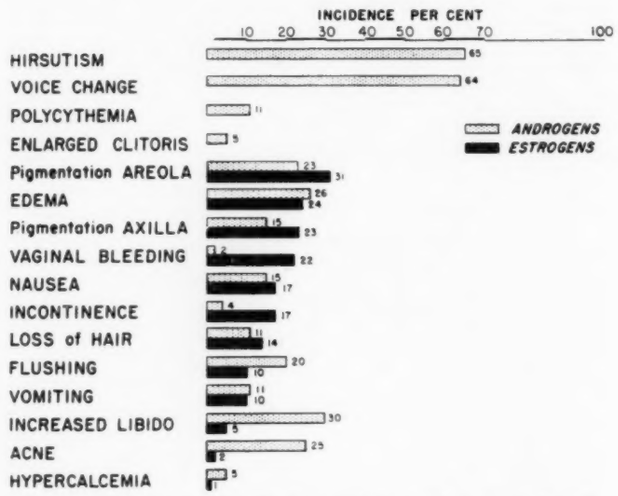

Fig. 5.—Incidence of side-effects of androgen and estrogen therapy.

Androgens.—The most prominent side-effects produced by androgen therapy were hirsutism and hoarseness, followed in frequency by increase in libido, edema, and acne. Hirsutism occurred in at least 65% of the patients treated with androgens and was most noticeable in brunette women with a natural predisposition toward excessive facial and body hair. From a cosmetic point of view this masculinizing side-effect was frequently very disturbing, particularly to younger patients. Voice changes, consisting primarily of hoarseness, occurred in 64% of those receiving androgens. This deepening of the voice is the result of hypertrophy of the vocal cords. After cessation of therapy, it often took many months before the voice returned to normal.

An increase in libido was noted in a least 30% of the patients treated with androgens. This probably represents a minimal incidence, inasmuch as many women were reticent about discussing so personal a problem. Kennedy and Nathanson,[11] in their excellent study of side-effects of sex steroids, confirm earlier findings that "androgens cause an increased susceptibility to psycho-sexual stimulation, enlargement of the clitoris and increased sensitivity of the external genitalia." Although the incidence of enlargement of the clitoris was only 5% in the present series, it must be noted that pelvic examinations were not performed routinely. Acne and a coarsening of the skin occurred in 25% of the patients receiving the androgens. This acneiform eruption varied from mild to severe, but occasionally it was pustular and cosmetically quite distressing. In those patients with severe acne, it appeared early in the course of treatment, often within the first few weeks.

Estrogens.—The most prominent side-effects produced by estrogen therapy were pigmentation of the areola and axilla, edema, and vaginal bleeding. Nausea, vomiting, and incontinence usually were disturbances of a secondary order of importance in both their incidence and their degree of discomfort.

Pigmentation of the areola and axilla was observed in 31 and 23%, respectively, of the patients treated with estrogens. Pigmentation of the areola is much less noticeable in Negro women. In contrast to the frequency of pigmentation of the areola and axilla, gross enlargement of the uninvolved breast was infrequent. Vaginal bleeding occurred in 22% of postmenopausal patients receiving estrogens. The uterine flow was usually minimal (consisting of staining or spotting), and therapy could often be continued without interruption. Occasionally, however, bleeding was sufficient to require curettage or modification of the prescribed dose. Withdrawal bleeding occurring 5 to 10 days after the cessation of therapy was noted particularly in elderly women. This usually lasted no longer than one to two weeks. Vaginal bleeding associated with androgen therapy was a rare occurrence but was present in 2% of the patients.

Urinary incontinence, usually of the stress type, occurred in 17% of the patients treated with estrogens. Although this sign was usually mild, it often proved embarrassing to elderly women. Nausea, occasionally associated with malaise, anorexia, and vomiting, was the commonest gastrointestinal side-effect observed. Administration of the hormone between meals, as well as a gradual increase in the dose schedule, usually permitted full tolerance of the drug despite these disagreeable effects.

Both androgens and estrogens are known to produce an increased retention of sodium and a corresponding increase in extracellular fluid. Edema was noted in 26% of the patients receiving androgens and in 24% of those receiving estrogens. However, there were many patients (particularly among those receiving testosterone) who gained 5 to 15 lb. (2.3 to 6.8 kg.) in weight without gross evidence of ankle edema. It is difficult but important to attempt to differentiate the water-retaining effect from the anabolic effect when evaluating weight gain in the patients treated with androgens. It is well known that an individual can gain up to 10 to 12 lb. (4.5 to 5.4 kg.) in edema fluid before clinical evidence becomes apparent. In

the patient with a previously compromised cardiovascular system, this increase in extracellular fluid may precipitate or hasten decompensation.

Kennedy and Nathanson have reported that "in 17 patients (9 per cent) of those receiving estrogen therapy, fluid retention led to congestive cardiac failure or exaggerated an existing mild decompensation." Any additional cardiovascular strain in older patients may precipitate cardiac decompensation. Patients with known cardiac disease should be given hormones with great caution. Also, postmastectomy lymphedema can frequently be aggravated during hormone therapy. Although salt and fluid retention can be a serious complication of hormone therapy, particularly in patients with cardiovascular disease, simple measures may be undertaken to minimize this contingency. A low-salt diet and rigid fluid restriction in addition to diuretics and digitalis when indicated may allow patients to continue hormone therapy without interruption.

TABLE 4.—*Comparison of Side-Effects of Ethinyl Estradiol and Chlorotrianisene (TACE)*

Side-Effect	Ethinyl Estradiol (50 Cases)		Chlorotrianisene (41 Cases)	
	No.	%	No.	%
Edema	10	20	9	22
Bleeding	5	10	13	32
Flushing	4	8	4	10
Nausea	6	12	10	24
Vomiting	3	6	4	10
Loss of hair	7	14	5	12
Pigmentation of areola	22	44	9	22
Pigmentation of axilla	14	28	4	10
Incontinence	7	14	6	15

Hypercalcemia is an infrequent but serious side-effect, occurring in 5% of the patients receiving androgens and in 1% of those receiving estrogens in the present series. However, it has been reported more frequently by the Committee on Research, occurring in 7.7% of patients treated with estrogens and in 14.2% of those treated with androgens. Clinical evidence of hypercalcemia is manifested by anorexia, nausea, vomiting, and weakness, which in severe cases may go on to disorientation, stupor, and coma. Initial symptoms may be deceptively mild, but the syndrome may progress rapidly to a hypercalcemic crisis, renal failure, and death. The syndrome of hypercalcemia may be difficult to rectify, but immediate cessation of therapy is always mandatory. Supportive therapy, consisting of a low-calcium diet and infusions of saline solution, dextrose, and a 2.5% solution of sodium citrate, often proves helpful. Pearson, West, and Hollander [12] have reported that cortisone has been used very successfully in several cases of hypercalcemia. The effectiveness of this drug has been amply confirmed by others. The subsidence of hypercalcemia and hypercalciuria was associated with prompt clinical improvement.

Laszlo and his co-workers [13] have studied the mineral metabolism of patients with bone metastases and have not infrequently found elevated levels of urinary calcium and phosphorus excretion even without hormone treatment. When the amount of calcium created by osteolysis due to tumor invasion exceeds the amount that the kidney can excrete, hypercalcemia results. Thus, hypercalcemia may occur spontaneously in patients with osseous metastases as well as in those with the more serious hormone-induced syndrome. In the current study, hypercalcemia was defined as any calcium level in excess of 12 mg. per 100 cc. of blood. None of the patients in the present series who showed evidence of elevated blood calcium levels had clinical symptoms of hypercalcemia. Perhaps the low incidence of serious hypercalcemia can be attributed to the predominance of ambulatory patients such as are seen in a clinic. In bedridden patients with metastases who are immobilized over a long period of time, osteoporosis and disuse may excessively elevate the calcium level.

Comparison of the various estrogens and androgens used in this study failed to reveal any striking difference in the incidence of their side-effects. However, in the specific comparison of side-effects caused by ethinyl estradiol and chlorotrianisene, some significant differences are shown in table 4. A statistically valid variation occurred in the frequency of vaginal bleeding (10% for ethinyl estradiol as compared with 32% for chlorotrianisene) and in the incidence of pigmentation changes. The side-effects of stanolone when compared with those of testosterone showed all of the predominant androgenic characteristics except a lower incidence of increased libido. The number of patients showing side-effects due to combined estrogen-androgen therapy was not sufficient for critical evaluation. However, the specific changes caused by individual sex steroids may be masked or minimized by combined treatment.

TABLE 5.—*Results of Combined Androgen-Estrogen Therapy*

Type of Lesion and Classification of Response	Results (8 Patients)	
	No.	%
Objective response		
Primary		
Improved	...	...
No change	2	67
Worse	1	33
Soft tissue		
Improved	1	17
No change	1	17
Worse	2	66
Visceral		
Improved	1	20
No change	3	60
Worse	1	20
Osseous		
Improved	...	...
No change	1	25
Worse	3	75
Subjective Response		
Well-being		
Improved	4	50
No change	2	25
Worse	2	25
Relief of pain		
Improved	3	50
No change	2	33
Worse	1	17

Combined Androgen-Estrogen Therapy

There were eight patients who received complete courses of ethinyl estradiol (3 mg. daily) plus testosterone propionate (100 mg. three times weekly) simultaneously. The results of this combined treatment are shown in table 5. A critical analysis of this small

sample is, of course, unwarranted, but there would appear to be no striking superiority in either the objective or subjective response over that of similar treatment with either hormone alone.

Survival

Although there is little doubt that the sex steroids are effective in the palliative treatment of advanced cancer of the breast, it would be of equal importance to know whether this type of therapy actually prolongs survival time. However, the unequivocal answer to this problem remains to be solved. One must be extremely cautious in selecting "comparable series" for this type of a statistical study, as it is readily apparent that the degree of advancement of the disease is difficult to determine and the heterogeneous composition of these preterminal groups is so conspicious. Despite this question of validity of comparison among dissimilar series, the Committee on Research states that steroid therapy "may prolong life" as demonstrated by the following figures taken from their Second Conference on Steroids and Cancer[10]: 347 patients with soft-tissue involvement were treated. The average survival rate for the patients whose conditions were not improved was 7.5 months, while, for the 100 patients who showed tumor regression for an average period of 6.1 months, the survival rate averaged 13.57 months. Thus, patients who responded to treatment lived twice as long as those who failed to respond.

Hallberg, Nohrman, and Sylven[14] compared the mean survival time in two series of patients, taking time zero as the date of diagnosis of bone metastases. Patients with visceral lesions were excluded from the study, but patients with soft-tissue metastases were included. One series of 97 patients was treated with testosterone alone, and a control series of 254 similar patients was treated by palliative radiotherapy. The mean survival time for the patients treated with androgens was 21 months, as compared with 15 months for the controls. Hallberg, Nohrman, and Sylven conclude that "the data suggest that androgen treatment significantly increases the length of survival."

Huseby[15] has recently presented a comparison in longevity between a group of 58 patients in Minnesota with "generalized" metastases treated with estrogens from 1946 to 1951 and a seemingly similar group of 193 patients in California treated palliatively (without hormones) by Shimkin and his colleagues from 1918 to 1947.[16] The mean and median survival times were 10 and 7.8 months, respectively, for Shimkin's group and 20.3 and 16 months, respectively, for Huseby's group. Huseby found by analysis that the difference in survival time between patients in these two series was statistically highly significant.

Thirty-one patients in the present series with advanced disease were treated with the sex steroids only from the time of diagnosis until death or until they were lost to further follow-up. Also, seven of these patients are still alive and are receiving treatment at the present time. Results of a life table were found to be difficult to evaluate critically because of the small number of patients in the study and the large number of withdrawals. Those patients withdrawn from observation tend to increase the uncertainty of the estimate (and therefore increase the standard error). However, the three-year survival from the time of diagnosis of advanced or metastatic breast cancer was 24%, with a very large standard error of ± 18.6%. It is hoped that homogeneous series similarly treated (with and without hormones) will be reported by other investigators so that survivorship and prolongation of life may be more accurately compared. It is to be noted that a statistically valid conclusion as to whether life is lengthened in these patients treated with hormones can be made only when their survival is compared with that of a group of completely untreated patients. However, in this age of modern surgery, radiotherapy, castration, adrenocorticoid therapy, and other chemotherapeutic adjuvants, it is doubtful that such a series of untreated cases will ever again be found. Older series were found to be deficient in several respects, thus invalidating comparison.

Comment

It is to be pointed out that the individual groups of patients receiving androgen and estrogen therapy were not entirely comparable by virtue of some difference in their age range. Androgen therapy was used in both premenopausal and postmenopausal patients, whereas estrogen therapy was used only in postmenopausal patients. Despite some conflict in the medical literature,[17] cancer of the breast in young premenopausal women appears to be a more menacing disease. Therefore, one may be permitted to question the validity of the relatively poor results of androgen therapy in a group of younger premenopausal women in whom the prognosis is known to be less favorable. Present experience confirms the well-known fact that the relentless growth of mammary cancer can be modified and even caused to regress by appropriate alterations in the hormonal environment. However, despite even the most spectacular remission after a change in the endocrine milieu, the disease ultimately progresses by adapting itself to its new environment. Thus, since hormone therapy for advanced mammary cancer is time-limited and unpredictable in its palliative effectiveness, it should be used only after more definitive measures of treatment such as surgery and radiotherapy are no longer applicable. The duration of objective remission under hormone therapy was highly variable in point of time, lasting from a few months to an indefinite period of years. In the exceptional instances of long-lasting benefit, we tend to celebrate our successes without proper regard for the degree of host resistance—an unknown factor of the utmost importance.

In addition to sex steroid therapy, a variety of endocrine procedures designed to alter the hormonal environment have been known to induce a temporary remission in patients with advanced mammary cancer. Such operations for endocrine ablation as oophorectomy, adrenalectomy, and hypophysectomy have been used beneficially in the palliative treatment of this disease. Cortisone and its derivatives, with or without thyroid medication,[18] have been used with some success, particularly in patients with metastases to the

brain. However, it is not the purpose of this paper to review these several modalities of endocrine ablation or to discuss their role in the total treatment of this disease. Whereas interruption of ovarian function is most successful in young women with advanced mammary cancer and the administration of the estrogens is of greatest benefit in elderly women, in androgen therapy the age of the patient appears to be of relatively little importance. A notable effort is being made in biochemical research to discover newer sex steroids that, on the one hand, will have an even greater potency of tumor suppression and, on the other, will have an even lower incidence of undesirable side-effects. Thus far, however, there appears to be no androgen possessing positive superiority over testosterone and no estrogen to excel either ethinyl estradiol or diethylstilbestrol. The degree of response to therapeutic doses as compared to massive doses of the same drug remains to be clarified.

Summary and Conclusions

One hundred thirty-three patients received 223 complete courses of sex hormone therapy for advanced mammary cancer. The choice between estrogen and androgen was made principally in relation to the physiological age of the patient in reference to her menopause. Estrogens were used only after five years had passed since the menopause, whereas androgens were found to be useful in both premenopausal and postmenopausal patients. However, in the definitely older patients, estrogen appeared to be the hormone of choice.

A favorable objective response occurred with estrogen therapy in 40% of patients with primary tumors, 31% with soft-tissue lesions, 32% with visceral lesions, and only 17% with osseous lesions. Both stilbestrol and ethinyl estradiol were found to be superior to chlorotrianisene (TACE) in estrogen therapy. A favorable objective response occurred with androgens in 27% of patients with primary tumors, 23% with soft-tissue lesions, 15% with visceral lesions, and only 11% with osseous lesions. There appeared to be no significant difference in objective therapeutic effectiveness between the several androgens used. The optimum dose of testosterone propionate was 50 to 100 mg., given intramuscularly three times weekly. Complete or partial relief of pain occurred in 52% of the patients treated with androgens and in 51% of those treated with estrogens. Stanolone appeared to be superior to testosterone propionate in the subjective relief of pain. A sense of well-being occurred in 48% of the patients treated with androgens and in 44% of those treated with estrogens.

Although the sex hormones are certainly not a "cure" for advanced mammary cancer, in the total care of this disease they do offer profound and gratifying benefits for patients beyond the scope of surgery and radiotherapy. Whereas "severity is allowable when gentleness is in vain," it has been our practice to make full use of the initial palliative benefits of hormone therapy before considering the more drastic operative procedures such as adrenalectomy or hypophysectomy.

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Acne Vulgaris.—The main aim of therapy in acne vulgaris is to remove the blockage from the mouth of the pilosebaceous follicles, thereby allowing the retained sebum to escape on to the surface of the skin, and to decrease the size and activity of the sebaceous glands. This aim could be realized quite simply by giving suitable amounts of estrogens, were it not that the dose necessary would cause feminization in males and uterine bleeding in females. To a certain extent, however, it is possible to produce similar results by different means. . . . Soap and water attain therapeutic qualities in local treatment, especially when the skin is greasy and comedones are plentiful. The face should be washed four or five times a day in hot water and then briskly rubbed with a soft towel. The exact type of soap is unimportant, but the addition of borax or sodium bicarbonate to the water is helpful. Sulphur is the most useful local application, as it causes an exfoliation of the surface layers of the epidermis, thus removing the comedones. To maintain a mild peeling of the skin should therefore be the aim of treatment. The sulphur can be incorporated in a lotion, emulsion or paste. Care must be taken not to cause too drastic a reaction and this is especially likely to occur in fair-skinned individuals. Two or four per cent of sulphur is a reasonable strength with which to begin and this may be slowly increased up to ten or twelve per cent.—P. F. Borrie, M.D., M.R.C.P., Acne Vulgaris, *The Practitioner*, May, 1956.

SORTING—THE KEY TO MANAGEMENT OF VICTIMS OF DISASTER

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• *The simultaneous infliction of injuries of all degrees on a large population must be anticipated in the event of either natural or nuclear disasters. When facilities for treatment are limited, the greatest possible number of lives can be saved only by making sure that these facilities are not exhausted by injudicious use on either the trivial or the hopeless cases. Triage, the sorting of the injured, must be done by the most mature surgeon available. It decides questions of treatment, of transportation, and of return to duty. Its effectiveness is enhanced by attention to the changing tactical situation. The principles of triage here stated were developed under conditions of conventional warfare. But it must be assumed that with certain modifications they will apply also under the altered conditions of the future, such as the sudden outbreak of nuclear warfare or the occurrence of natural disasters in a more densely populated world.*

The medical management of large numbers of sick or injured, whether they result from epidemic disease, combat, or disaster, involves the establishment of an organization that takes into consideration every essential of proper care. This orderly process of medical management insures that wherever possible each patient will receive treatment in proportion to his degree of morbidity and disability and under no circumstances will the lives of the many be jeopardized by the medical needs of the one or of the few. In order to function properly, this organization must be prepared to classify and categorize its patients on the basis of type and severity of wound or disease condition so that a minimal time loss in the institution of proper therapy and disposition of each case can be expected. Early classification permits visualization of over-all medical requirements for large groups of casualties and, on this basis, aids in the decision as to when, where, and what type of therapy should be instituted. Lack of early classification of the sick and wounded en masse leads to confusion, chaos, and increased mortality, for then each patient is individually treated without regard for the more urgent needs of others in the group or for the medical capabilities of the organization.

Sorting, or triage, is officially defined by the U. S. Army as the procedure by means of which the sick and wounded are classified according to type and urgency of condition presented, so that they can be properly routed to medical installations appropriately situated and equipped for their care. It is a procedure that had its inception in the care of those wounded in combat but that, with only minor modification of specific detail, may be equally as well applied to any organization having as its responsibility the care of large numbers of injured generated relatively simultaneously. Sorting is, in fact, the key to the management of these patients, for it is only by its means that casualties may be categorized properly and separated so that there will be a minimal time lag between injury and the onset of therapy. In its application, sorting considers the necessity for overlooking no one and for doing the greatest good for the largest number of casualties. Both these goals are accomplished by taking into consideration the medical capabilities of the installations involved and the relative proportion between the number of professional personnel available for the institution of therapy and the total number of patients requiring treatment.

Decisive Factors in Sorting

Sorting is directed toward making decisions with regard to, first, the establishment of criteria for the return of the injured to duty. In combat, this decision will vary with both the type of wound sustained and the specific tactical situation, so that under no circumstance will a casualty be returned to duty if his incapacitation might interfere with the conduct of the battle. Conversely, no casualty will be unduly delayed in his return to duty, for delay would result in the need for a replacement, and it is uneconomical to replace a battle-tried veteran with an unseasoned soldier. It thus becomes necessary to hold and treat casualties for periods of time that vary according to type and severity of wound, for upon return to duty these casualties must be assets rather than liabilities to their organization. In this way, a priority for return to duty is established by weighing clinical condition against tactical requirements. In a disaster, on the other hand, clinical condition must be weighed against manpower shortages. Thus, the size of the disaster and the availability of outside help for the institution of rescue and of first-aid and emergency medical treatment may determine what type of injured, and how many, must be released in order to aid in the care of the other victims. Early release of disaster victims may also be determined on the basis of available hospitalization facilities, so that overcrowding and consequent jeopardy to health may be minimized.

The second decision to be arrived at in sorting concerns the establishment of priority for treatment. Because the type and urgency of the therapy to be employed will vary with the severity of the wound, a priority must be established for the care of the various types of wounded. Treatment priorities are not only dependent on the urgency of therapy required but also vary with the stated function of a particular installation, for it is on this basis that specially trained medical personnel are assigned and supplies and equipment allocated. Thus, the treatment to be given must be within the medical capabilities of the particular installation. With an adequate number and type of assigned professional personnel, priorities for treatment may have to be varied by the type and availability of medical supplies and equipment. Typi-

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cally, a hospital with only a limited supply of blood on hand and with little likelihood of more becoming available in the near future will spread the use of that blood so as to aid in the recovery of the largest number of injured. On this basis, the critically wounded man who would require all of the only 10 units of blood available in order to aid in his possible recovery would drop in priority to a position below that of the five casualties whose certain recovery would be insured by the receipt of 2 units each. Conversely, where only 2 units of blood are on hand to treat the shock of 10 casualties, the best utilization of this item would entail using it in the resuscitation of no more than 1 or 2 of these casualties rather than wasting it by giving each only 1/5 unit.

Establishment of priority for treatment may also be varied by the number and caliber of physicians available for the institution of treatment. Thus, in a disaster zone in which all physicians have become disabled and the institution of therapy must be accomplished by ancillary medical personnel, such as dentists, veterinarians, and nurses, little would be accomplished by the establishment of priorities for surgical procedures of other than minor magnitude, for they would be beyond the capabilities of the available personnel. In such a situation, only priorities for resuscitation and emergency medical treatment would be instituted. These casualties would then be evacuated to other installations whose personnel are more capable of handling the complicated technical surgical procedures required. Where large supplies of medical matériel are immediately available, in an installation adequately staffed for the care of any casualty, the priority for surgical treatment will depend on the type and urgency of treatment required.

The third type of decision to be rendered is the casualty's need to be evacuated for further treatment and the timing of this move in relation to the program of therapy. Basically, requirements for evacuation are determined by the need to conform to the tactical situation, which limits the number of noncombat personnel and matériel brought into a combat zone. This limitation is necessary to prevent excessive interference with the mobility and maneuvering of the tactical force and allows for only a few small, highly mobile medical installations in the area. The evacuation of casualties either to prevent their interfering with the conduct of the battle or in order to insure them more adequate treatment in the larger, less mobile, better-equipped installations farther to the rear is, therefore, necessary. Obviously, evacuation should be performed only for those casualties whose physical deterioration will not be accelerated by it and should be carried out in such a manner that safeguards will be provided against such an eventuality. Thus, a system of priorities for evacuation is established in the determination of which physical condition is weighed against the rigors of travel and both are balanced against the available means for transportation.

Although in some instances the priority for evacuation is the same as the priority for treatment, frequently the necessity for early urgent therapy is of such a high degree that unwise early evacuation prior to treatment could result in death. For example, a casualty in severe shock as the result of uncontrolled bleeding from a laceration of the femoral artery enjoys a high priority for the control of his bleeding and the treatment of shock and no priority for evacuation. After necessary resuscitation has been performed, he then receives a high priority for evacuation so that vascular surgery may be performed early. Each surgeon, as he sorts to determine priority for evacuation, must assess the urgency and degree of essential medical care against the available means of evacuation and the supporting medical capabilities. He must avoid arbitrary sorting for evacuation by determining that there is a place to which casualties can be evacuated, that there are suitable means for evacuation, and that the patient is in a fit state for this evacuation. All these factors will vary with the particular situation, and sorting must, under all conditions, be permitted to remain flexible.

Other Considerations

All sorting, since it requires a high degree of professional skill in making the requisite clinical judgments, should be performed by the most mature surgeon of a given installation. These decisions are based on clinical experience plus an expert knowledge not only of the particular tactical situation but also of the medical capabilities of all installations in the treatment chain. A realistic appraisal must be made regarding the likelihood of survival, the time required to perform the needed technical procedures, and the capabilities for medical care available at the time and place. Errors in judgment will lead to increases in morbidity and mortality through submitting to surgery casualties who have not been adequately resuscitated, evacuating injured without regard to clinical condition or the rigors of movement, and attempting procedures beyond the capabilities of the installation.

Sorting is a continuous procedure that starts with initial medical care and terminates only with the final disposition of each patient. It must establish priorities at each installation in the treatment chain because the function, medical capabilities, and facilities of each are different, and due consideration, in the light of these factors, must be given to every casualty upon his arrival in the installation. Moreover, the condition of the patient will change as a result of the institution of resuscitative treatment, necessitating re-sorting. Furthermore, a continuing influx of casualties may cause a change in the priority for treatment and evacuation of the injured already present. These changes produce the need not only for sorting at each installation but also for a revision of priorities at fairly frequent intervals in each.

In addition to all of the foregoing factors, or perhaps because of them, sorting is necessarily a flexible procedure, for the considerations influencing the required decisions will vary from day to day and from one situation to another. Typically, the surgeon who sorts by rote may fail to consider many factors important in making the proper decisions. For example, he might overlook the fact that a disparity between the number of wounded and the total number of personnel available for institution of therapy might require a larger number of early evacuations to less

crowded installations. If he fails to consider the need to move his installation in keeping with the tide of battle, he may accept more casualties than he can treat in the time allotted prior to the move. If, in his sorting for evacuation, he fails to consider inclement weather as a deterrent to helicopter travel, he may bring about increased mortality by subjecting casualties to traumatic overland ambulance hauls. The ever-changing tactical situation must be observed and sorting remain flexible and subject to modification as needed.

As enunciated in the preceding paragraphs, sorting has as its objective the classification and separation of large numbers of sick and wounded so that priorities for treatment, evacuation, and return to duty may be more easily established. This system has evolved by trial and error through past wars until at the present time we pride ourselves on the fact that by its means no casualty is ever denied treatment. Treatment is usually commensurate with the severity of injury and the quality and number of facilities and personnel available; the time lag between wounding and the institution of therapy is reduced to a minimum; and, because of its efficiency, we accomplish the greatest good for the largest number. Remember, however, that this concept of the establishment of priorities was developed during conventional warfare and was based on an unfailing source of medical supplies and little or no disproportion between numbers of casualties and quantity and quality of medical personnel available for treatment. In practice, this system has resulted in priorities for treatment usually being established on the basis of wound severity, so that the most severely wounded enjoy the highest and the least severely wounded the lowest priority.

Priority System for Nuclear Warfare

Prior planning for the surgical care of mass casualties resulting from nuclear warfare, where limited treatment facilities, inadequate supplies, and a shortage of medical personnel will prevail, makes it evident that, in order to provide no disservice to the many in favor of the few, some modification of our priority system must be established. Such a modification, as outlined in a Department of the Army technical bulletin [1] provides, in the event of atomic disaster, for all injured to be divided into four groups:

1. Casualties requiring minimal treatment:
   a. Those who may return to duty after minimal treatment is given.
      (1) Those with small lacerations or contusions.
      (2) Those with simple fractures of small bones.
      (3) Those with second degree burns of less than 10% of body surface and not involving incapacitating burns of face or hands.
   b. Noneffectives who require domiciliary or nursing care after minimal treatment is given.
      (1) Those with disabling minor fractures.
      (2) Those with burns of the face or hands of less than 10% extent but which interfere with the individual's ability to care for or feed himself.
      (3) Those with moderate neuropsychiatric disorders.
2. Casualties requiring immediate care:
   a. Those with hemorrhage from an easily accessible site.
   b. Those with rapidly correctable mechanical respiratory defects.
   c. Those with severe crushing wounds of the extremities.
   d. Those with incomplete amputations.
   e. Those with severe lacerations involving open fractures of major bones.
3. Casualties whose surgical treatment may be delayed without immediate jeopardy to life:
   a. Those with closed fractures of major bones.
   b. Those with moderate lacerations without extensive bleeding.
   c. Those with second degree burns of less than 30% and third degree burns of less than 20% of the body surface.
   d. Those with noncritical central nervous system injuries.
4. Casualties whose therapy will be expectant:
   a. Those with critical injuries of the central nervous system or respiratory system.
   b. Those with significant penetrating or perforating abdominal wounds.
   c. Those with multiple severe injuries critical in nature.
   d. Those with severe burns of large areas (second or third degree burns of 40% or more of the body surface).

It is estimated that in atomic disaster group 1, those requiring minimal treatment, will comprise approximately 40% of the total casualties. These casualties truly have no priority for treatment but in practice will receive their treatment early. Ordinarily, their wounds are of such a nature that the treatment they receive while being sorted is all the therapy that they require, and they can then be returned to duty or remanded to domiciliary care.

Group 2, those requiring immediate care, is expected to comprise 20% of the total number of casualties. These injured will enjoy the highest priority for surgical treatment because a relatively short procedure will suffice to save life. Further, more definitive surgery for these casualties can then be delayed, although the possibility of infection must be accepted as the price of this delay.

Group 3 is expected to comprise 20% of the total and is composed of casualties a delay in whose surgical treatment will probably lead to infection but whose lives will not be jeopardized by the delay. The time lag between wounding and surgery for this group will be dependent on the total number of casualties of all types and the number of professional personnel available to institute surgical treatment.

Group 4 is expected to comprise 20% of all casualties resulting from the explosion of a nuclear weapon. Their expectant treatment will not be one of masterful neglect but instead will consist of that resuscitation and emergency medical treatment that the available facilities, total supplies, and number of professional personnel permits. Theirs will, however, be the lowest priority for treatment, because both the operative procedures and the resuscitative measures required are lengthy and technically complicated, so that the institution of therapy for one of these casualties would theoretically jeopardize the lives of several casualties in other priority groups. Increased loss of life in this group is accepted as a necessary consequence of this low priority for surgery.

Summary

Sorting is the key to the management of large numbers of injured generated during conventional combat, for it is only through its utilization that modern principles and practices of therapy may be proportionately

applied to the combat wounded. Provided the enumerated changes in priorities are established, it will also become the key to the care of the larger number of simultaneously generated casualties resulting from the use of nuclear weapons in warfare. In civilian disasters or epidemics, adherence to the principles of sorting, establishment of priorities, and, where applicable, the need for evacuation will aid in minimizing morbidity and mortality.

Sorting is the procedure by means of which the sick and wounded are classified according to type and urgency of condition presented, so that they can be properly routed to medical installations appropriately situated and equipped for their care. It is a continuous procedure throughout the treatment chain and is practiced in each installation by the most mature surgeon available. The effectiveness of sorting is enhanced by observation of variations in the tactical situation. Sorting is directed toward establishing criteria for return to duty and priorities for treatment and evacuation. With certain changes in priorities, sorting as practiced during conventional warfare may be applied as the key to the management of casualties caused by either natural or nuclear disasters.

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THE DETERMINATION AND CLINICAL VALUE OF UROPEPSINOGEN

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and
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• *Determination of the concentration of pepsinogen in the urine can be technically practical and clinically useful. It may offer a better index of gastric peptic activity than does intubation, and it has been useful in the differential diagnosis of peptic ulcer versus gastric carcinoma. Uropepsinogen values can aid in locating the site of hematemesis and can assist in the diagnosis of pernicious anemia. The response of uropepsinogen to hormone stimulation may provide many diagnostic, as well as therapeutic, indexes to endocrinological conditions.*

Although 49 papers dealing with the subject of pepsinogen in the urine have been published since Bucher's [1] comprehensive review in 1947, there still exists a controversy as to its clinical usefulness. Much of the debate, so well described by Bridgewater,[2] is due to criticism of methodology rather than of clinical results. Most of the adverse criticism comes from those who employ the Anson and Mirsky tyrosine method [3] of determining the quantitative concentration of uropepsin in the urine. This procedure is cumbersome. It is full of potential pitfalls, is expensive, and requires a highly trained technician if the results are to be relied upon. In contradistinction, those who have utilized the simpler method herein presented have in the main concurred with us that the determination is both technically practical and clinically useful. The patient may follow his usual routine, no fasting or withholding of medication being necessary. Since, as Spiro [4] has indicated, uropepsinogen values may offer a better index of gastric peptic activity than those analyses in which gastric intubation is routinely required, their determination has considerable clinical promise. Furthermore, the simplified method employed is applicable in those hospitals not equipped to carry out highly technical procedures.

Many authors have recognized the value of uropepsinogen in considering differential diagnoses.[5] It has proved useful in the diagnosis of gastrointestinal disease, notably peptic ulcer and gastric carcinoma. In macrocytic anemias, associated with an achlorhydria not altered by stimulation with histamine, it is a reliable differential test in excluding pernicious anemia.[6] In cases of massive hematemesis, uropepsinogen values have been useful in the consideration of the differential diagnoses. Low levels have been consistently found in bleeding esophageal varices, whereas in cases of bleeding duodenal ulcers the values are consistently high. Early in the hospital course when gastric analysis may not be feasible, a simple quantitative test of the urine for uropepsinogen may be of critical value.

An apparent relationship between the level of uropepsinogen and the state of activity of the adrenal cortex has been noted.[7] In Gray's study [5a] "there was noted a marked diminution in excretion [of uropepsinogen] in patients with panhypopituitarism and Addison's disease and a definite increase in the excretion in patients with Cushing's disease, accompanied by parallel alterations in corticoid and ketosteroid excretion." Replacement therapy in both groups was manifest in the uropepsinogen's stabilization at normal concentrations. It has been postulated that the uropepsinogen response to hormone stimulation may be an index of gastric hypersecretion in patients undergoing prolonged treatment with cortisone or corticotropin. The presence of a high output might herald impending complications of hormone therapy, notably, the development of a duodenal ulcer, hemorrhage, or perforation. Boland [8] has demonstrated that this aspect is becoming increasingly important in this steroid era. Thorn [9] and others [10] have verified the work of Garst

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and Hilliard [11] demonstrating the relationship between uropeptic activity and the state of the pituitary-adrenal axis. The clinical practicality of a simple determination of the concentration of uropepsinogen in a specimen of urine is apparent.

Physiological Considerations

Mirsky and his co-workers [12] verified the work of earlier investigators by establishing two facts: The source of uropepsinogen is the stomach, and it reaches the urine in some other way than by resorption from the intestine. If this be true, then an animal that had undergone total gastrectomy would have no pepsinogen in the urine. This has been shown repeatedly to be true in a variety of animals and in man. It was also concluded that since pepsin is inactivated at a pH of 4 and since blood is of a pH range 7.35-7.45, the pepsin-like substance in the urine must indeed be its precursor or zymogen—pepsinogen. Pepsinogen is stable at the pH of blood.

TABLE 1.—*Uropepsinogen Values in Normal Subjects and in Patients with Duodenal Ulcer*

Type of Subject	No. of Subjects	Uropepsinogen (Range), Meg./Hr.	Uropepsinogen (Mean), Meg./Hr.
Normal*	19	29.5—188.7	77.5
Duodenal ulcer	13	115.4—967.5	328.0

* Technicians and doctors on the laboratory staff with no symptoms of hematological, gastroenterological, or endocrine disorder.

These experiments indicate that the peptic gland is both an exocrine and endocrine organ. Janowitz and Hollander [13] have found a definite relationship between the exocrine and endocrine function as regards pepsinogen, this relationship being 99:1 (exocrine to endocrine). These results offer a sound basis for the consideration of the utility of a test for uropepsinogen in the detection of gastric peptic activity.

Experimental Procedure

Urine samples are collected in bottles containing 0.5 cc. of sulfuric acid (25%) to insure constant acidity. Pepsinogen in the urine is converted to pepsin by incubating a portion of the sample for one hour at 37 C with 2 *N* hydrochloric acid. A pH of 2.5 to 3.0 is necessary to obtain conversion. Buffered casein solution is added to an aliquot of the activated urine and the time required for the pepsin to flocculate casein particles is observed. This is the Goodman modification [6a] of the original West method [7a] referred to above as the "simpler" technique.

TABLE 2.—*Effect of Surgery on Uropepsinogen Values*

Reason for Operation	No. of Subjects	Mean Uropepsinogen, Meg./Hr. Preoperative	Mean Uropepsinogen, Meg./Hr. Postoperative	Type of Surgery
Duodenal ulcer	1	261.9	305.1	Vagotomy
Lesser curvature gastric ulcer	1	37.8	13.5	Subtotal gastric resection

Since the uropepsin assay is based upon comparison with crystalline pepsin, it was decided to express results in terms of micrograms of pepsin rather than arbitrarily defined units. Dilute solutions containing 0.05-0.30 mcg. of crystallized pepsin per 0.1 ml. are treated in the same manner with water, buffer, and substrate as the activated urine. The stock solution of pepsin (25.0 mg. in 250 ml. of dilute hydrochloric acid) keeps at least two months when refrigerated. The values for the pepsin solutions are plotted on log-log graph paper, and the urine values are calculated from it. The amount of pepsin per aliquot of activated urine is converted to micrograms per milliliter of urine. This figure is then multiplied by the total volume of the specimen divided by the four hours of collection, thusly: mcg. per ml. $\times$ vol./4 = mcg. per hour. Results obtained by two different technicians agree within 0.01 to 0.07 mcg. per 0.1 ml. (In order to facilitate comparison of our results with those of authors who have employed the arbitrary West "units," the reader may divide the micrograms per hour by 2.7). Each technician should construct his own standard curve daily in order to eliminate possible variations in the detection of the end-point by different technicians and to eliminate possible variations in different casein substrates. This is much the same as a prothrombin "control" in the routine laboratory procedure.

Since uropepsinogen is stable for days when kept at a suitable temperature in a refrigerator, in an emergency during weekends, a preoperative urine specimen could be obtained and stored until the laboratory staff resumes activities. For surgical follow-up studies, this affords a feature not present in many laboratory tests.

TABLE 3.—*Hematological Value of Uropepsinogen Determination*

Disease	No. of Cases	Uropepsinogen (Range), Meg./Hr.	Uropepsinogen (Av.), Meg./Hr.
Proved pernicious anemia	2	0.7—2.2	1.4
Suspected pernicious anemia (macrocytic anemia with histamine achlorhydria)	4	28.0—117.5	65.6

Results of Study

The results presented were obtained from a series of 57 cases. Since the compilation of these data, additional cases have been tested, and a cursory examination of the results reveals confirmatory evidence for the facts herein presented.

Table 1 depicts the difference between the normal value of uropepsinogen and those encountered in subjects with duodenal ulcers. Though the normal range overlaps those values found in the presence of the cases of duodenal ulcers, it should be pointed out that 92% of the patients with duodenal ulcers had higher values than the highest normal. Of the overlap group, 79% were greater than three times the mean normal. A thorough appraisal of this lower bracket revealed that each patient was on a strict ulcer therapy regimen at the time of the test, and none of these had an actual ulcer niche demonstrated roentgenographically. This influence of activity on the level of uropepsinogen has been noted by others.[14]

Table 2 [15] illustrates the value of uropepsinogen determinations in assessing the results of surgery. It might appear that vagotomy is a worthless procedure

because it did not reduce the uropepsinogen content of the urine. This is not necessarily so; this finding merely indicates that at least the hormonal relationship still exists despite surgery. In the second case (table 2), despite the initial low level the uropepsinogen is reduced by approximately 65% postoperatively. Our findings agree with those of the Boston group where 26 such patients were studied.[5a]

As can be seen in this illustrative case of gastric ulcer, the level of uropepsinogen, falling within the normal range, is not diagnostic. This was true in three other cases, in which the range was 81.9 to 84.5, with a mean of 83.2 mcg. per hour. Uropepsinogen levels in cases of gastric malignancy, on the other hand, have been found by Gray [5a] to be considerably lower than those in patients with benign gastric ulcers. This was true in 61% of 53 patients with carcinoma, the level being zero in four cases of linitis plastica. In only three cases of malignancy in our series was the range 37.5 to 150.0 mcg. per hour. In these three examples, it can be seen that the uropepsinogen would have been of no diagnostic significance. It should be stated, however, that Gray's statistics correlate well with the well-documented higher incidence of carcinoma in hypofunctioning stomachs.

Table 3 discloses the level of uropepsinogen in patients with proved pernicious anemia as compared with several suspected of having this condition. If a patient has achlorhydria refractory to histamine stimulation, has macrocytic anemia, and has been given vitamin B_{12}, so that studies of his bone marrow are not diagnostic, this test affords the fullest measure of assurance thus far devised in a simple test to rule out a diagnosis of pernicious anemia. If a patient has a normal uropepsinogen level, it can be unequivocably stated that he does not have pernicious anemia. Studies with vitamin B_{12} labeled with radioactive cobalt are more refined, but these require technical facilities not generally available. The importance of adequate renal function and the primacy of the target organ, the gastric mucosal gland, is apparent here in these cases of hypopepsinuria.

Table 4 illustrates the effect on the rate of excretion of pepsinogen in the urine in a variety of conditions. Some are of a controversial nature, and the differential value of the uropepsinogen determination becomes apparent. Case 7 of table 4 is noteworthy in that the patient died over a weekend, and rather suddenly, from exsanguination and shock. Yet, despite the lack of additional evidence, the urine specimen obtained prior to death afforded some measure of support to the presumptive diagnosis. The value of this simple test for uropepsinogen in evaluating a patient with an endocrine disturbance and one with massive upper gastrointestinal hemorrhage is indicated by the following case reports.

Report of Cases

Case 1.—A 21-year-old woman noted increasing gain in weight, menstrual irregularity, and hirsutism. She was found to have borderline hypertension. Findings of a 17-ketosteroid excretion of 60 mg. per 24 hours prompted her referral to the endocrine clinic of the Pennsylvania Hospital. The endocrinologist, upon clinical evaluation, did not believe the patient had hyperadrenalcorticolism. A normal uropepsinogen value was confirmed by a normal 17-ketosteroid excretion determined in our laboratory. This patient with idiopathic hirsutism and exogenous obesity was spared expensive tests to rule out adrenocortical hyperfunction (Cushing's disease).

Case 2.—A Negro male, aged 68 years, with a 38-year history of excessive consumption of alcohol, was brought into the receiving ward in a state of shock. Hematemesis was observed, and rectal examination revealed a tarry stool. While the patient was assumed to be bleeding from esophageal varices, a balloon tamponade did not seal off the bleeding point. After 2,500 cc. of blood was given by transfusion, it became apparent it would be impossible to replace the blood fast enough; hence, an emergency gastrectomy was performed. Unfortunately, approximately six hours postoperatively the patient dislodged the endotracheal airway, vomited, aspirated a large amount of blood, and died. A preoperative uropepsinogen test revealed a level of 327.3 mcg. per hour. This is incompatible with Laennec's cirrhosis. At autopsy, gross and histological studies showed acute and chronic superficial hemorrhagic gastritis, not Laennec's cirrhosis.

It is apparent that, had routine measures to stop the flow of blood with a Sengstaken tube been continued, the patient would have died because of loss of blood. A simple urine test obtained when a barium swallow is not feasible might give the surgical member of a hemorrhage team the go-ahead signal, and the massive hemorrhage could thereby be controlled.

Table 4.—*Uropepsinogen Excretion Values in Various Disorders*

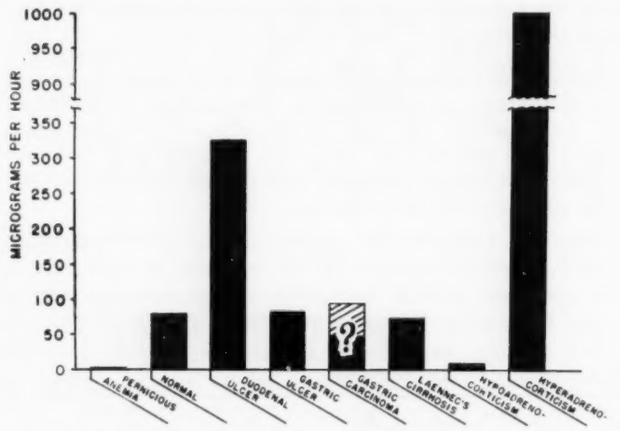
Case No.	Suspected Diagnosis	X-Ray and Laboratory	Uropepsinogen, Meg./Hr.	Final Diagnosis
1	Upper G.I. hemorrhage, probably marginal ulcer, dumping syndrome	G.I. series negative; submucosal rectal carcinoma (by biopsy)	41.4	Submucosal rectal carcinoma
2	Surgical abdomen, etiology probable perforated duodenal ulcer	Serum amylase 448 units	133.9	Pancreatitis
3	Pituitary adenoma, previously diagnosed, now in remission	Eroded sella; 17-ketosteroids, B.P., and blood sugar normal	158.4	Same as suspected*
4	Pituitary myxedema	I^{131} uptake 2.7; 17-ketosteroids (low), Kepler-power positive	7.8	Same as suspected
5	Laennec's cirrhosis, upper G.I. hemorrhage from probable peptic ulcer or esophageal varicosity	Prothrombin 29%, BSP (elevated), cephalin flocculation 4, bilirubin (elevated), albumin 1.7, globulin 7.0; G.I. series negative	73.0	Hypoprothrombinemia bleeding due to Laennec's cirrhosis
6	Uncontrolled diabetic, vomiting, etiology?	Guaiac negative stools, G.I. series showed duodenal irritability, no ulcer	59.2	Duodenitis
7	Alcoholic, upper G.I. hemorrhage	Died before studies in x-ray (no autopsy)	79.0	Probable Laennec's cirrhosis with bleeding esophageal varicosity
8	Systemic lupus (not on steroid therapy)	Positive L.E. test	130.0	Same as suspected

* A patient with full-blown adrenocortical hyperfunction (Cushing's disease) tested by two of us [15] had a uropepsinogen level of 961.2 meg. per hour.

Comment

The figure is a graphic demonstration of the comparative levels of excretion of uropepsinogen in well and in diseased persons. The mean value for cases of

duodenal ulcers is four times normal. The diagnostic value of this determination in excluding pernicious anemia is obvious when it is noted that the lowest normal value is approximately 14 times that of the highest value for cases of pernicious anemia (mean for pernicious anemia equals 1/55 of mean value for normal). The test is of no diagnostic value in a benign gastric ulcer, and its usefulness in differentiating the malignant lesion of the stomach is not determined. In the bleeding patient, its value is evident. It is probably too early to comment on the significance of the relationship of uropepsinogen to the adrenocortical-gastric axis. Suffice it to say, stress and psyche are well-known



Comparison of uropepsinogen levels (mean values) in well and diseased persons.

bedfellows, and both have been justly incriminated in the pathogenesis of disease. It may be reiterated, however, that, if the index of suspicion is high regarding adrenocortical hypofunction (Addison's disease) or adrenocortical hyperfunction (Cushing's disease), this test may be of special value.

The department of rheumatology has recently undertaken a study[16] to test the reliability of this determination in "predicting" gastroduodenal complications of steroid therapy. Impetus to this investigation was recently afforded by a female patient with rheumatoid arthritis, who, without any previous gastrointestinal symptoms, suddenly suffered a perforation of a peptic ulcer.

Conclusions

If the simple technique of West, using Goodman's substrate and a curve standardized within the individual laboratory, is put to the test as the more controversial Anson and Mirsky method has been, the uropepsinogen determination may well find a place of real practical value among the tests that are simple to perform and that afford valuable clinical information.

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Dr. George R. Fisher, Chief of Endocrine Clinic, gave permission for use of case 1.

Dr. Edward H. McGehee, Hematologist, Pennsylvania Hospital, gave permission for use of the cases shown in table 3.

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Postmastectomy Lymphedema.—The major factors in the production of lymphedema in the post-radical mastectomy arm are failure of muscular pump and anatomic disruption of lymph drainage channels. The failure of the muscular pump action of the extremity takes place in three stages. First the arm is necessarily immobilized in the immediate post-operative period. During this stage normal muscular action of the arm, particularly the shoulder girdle musculature, is prohibited. The second stage, disuse atrophy, occurs if immobilization is continued beyond a few days. In the final stage the patient may develop a frozen or partially limited shoulder, further inhibiting the use of the extremity and contributing further to the trend of disuse and hence failure of the muscular pump. Actual interruption of lymph drainage channels through the axilla is probably the major cause of the lymphedema; however, cases can be cited in which the lymph vessels and nodes were relatively spared and yet lymphedema developed. Apparently both disuse and channel interruption factors are operative in most cases. Physical treatment, prophylactic or definitive, is aimed at minimizing the effect of the two etiologic factors. Active motion of the shoulder should be initiated as soon as feasible post-operatively, certainly by the time the sutures are removed; partial range can often be prescribed safely a few days after operation, though full range exercises may have to be delayed. The patient should be instructed during the further recovery period to exercise the arm with increasing frequency and increasing resistance, even with the use of some household articles (such as a flatiron) for weights. It has been shown that muscular activity is an efficient method of moving lymph from an extremity.—C. Long II, M.D., Physical Factors in Post-Mastectomy Lymphedema, *Henry Ford Hospital Medical Bulletin*, June, 1956.

KINKING OF AORTIC ARCH (PSEUDOCOARCTATION, SUBCLINICAL COARCTATION)

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• *Roentgenographic evidence resembling a mediastinal tumor or coarctation of the aorta might, after careful study, prove to be a kinking of the aortic arch. Ten cases of this particular aortic deformity have been observed at the Mayo Clinic, four diagnosed in retrospect. Nine of the 10 patients had systolic murmurs at the base of the heart, probably the result of turbulence of blood in the region of the aortic kink. Oblique and lateral roentgenograms will usually allow the diagnosis of kinking, and confirmation can be had through angiocardiography.*

Kinking of the aortic arch is an anomaly that usually is recognized first by the appearance of the upper mediastinal shadow on the posteroanterior thoracic roentgenogram. The roentgenographic appearance frequently simulates that of a tumor adjacent to the aortic arch. Sometimes it brings to mind the deformity of the aorta that may be seen in coarctation. Furthermore, in roentgenograms taken in the lateral and left anterior oblique positions, a kink or buckle is seen in the aortic shadow, with its angular convexity at about the level of insertion of the ligamentum arteriosum.

This appearance of the aortic arch has resulted in the application of unsatisfactory and confusing names to this entity. For instance, it has been called "atypical coarctation," [1] "subclinical coarctation," [2] and "pseudocoarctation." [3] We prefer to adhere to noncommittal and, we believe, more accurate and less confusing designations, such as "buckling" or "kinking" [4] of the aorta. The first two of the following brief case reports present some of the features of this condition. These are taken from a group of six such cases encountered at the Mayo Clinic in which the diagnosis was made primarily.

Report of Cases

Case 1.—A 40-year-old woman first visited the Mayo Clinic in 1936 because of pain in her left sacroiliac region a few months after a fall. Her health had otherwise been good, although a cardiac murmur had been heard when she was 12 years of age. Results of examination in 1936 were essentially negative except for a basal systolic murmur of moderate intensity transmitted faintly to the vessels in the neck. The blood pressure was 150/86 mm. Hg. A roentgenogram of the thorax showed some torsion of the aorta. The patient visited the clinic on many occasions during the next 19 years, the last time being in 1955. In 1939, a stone was removed from the left ureter and hypoplasia of the right kidney was noted. Her visits often concerned episodes of thoracic pain that was thought to be consistent with angina pectoris, although the story was atypical. Her blood pressure gradually increased to 200/100 mm. Hg. Review of her electrocardiograms, including tracings recorded in 1955, revealed them to be normal aside from slight evidence of left ventricular hypertrophy. Over a period of 12 years, only minor changes occurred in the roentgenographic appearance of the cardiomediastinal configuration.

A number of roentgenologic diagnostic possibilities were entertained during observation of the patient in the above case, including aneurysm and mediastinal tumor. We now consider that the appearance of the upper mediastinum unquestionably is the result of a developmental kink or buckle of the aorta in the region of the ligamentum arteriosum (fig. 1). It is also extremely likely that this patient's murmur, discovered when she was 12 years of age, is a result of turbulence of the blood stream in the region of the aortic kink.

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Read before the Section on Radiology at the 105th Annual Meeting of the American Medical Association, Chicago, June 13, 1956.

Case 2.—A 37-year-old woman registered at the clinic in 1954 with the main complaint of pain on swallowing. Six months previously, a thoracic roentgenogram had been taken and she had been told that she had an "enlarged blood vessel." Examination disclosed a grade 1 systolic murmur in the left infraclavicular zone transmitted to the left subclavian and carotid regions and faintly to the left upper interscapular region. Blood

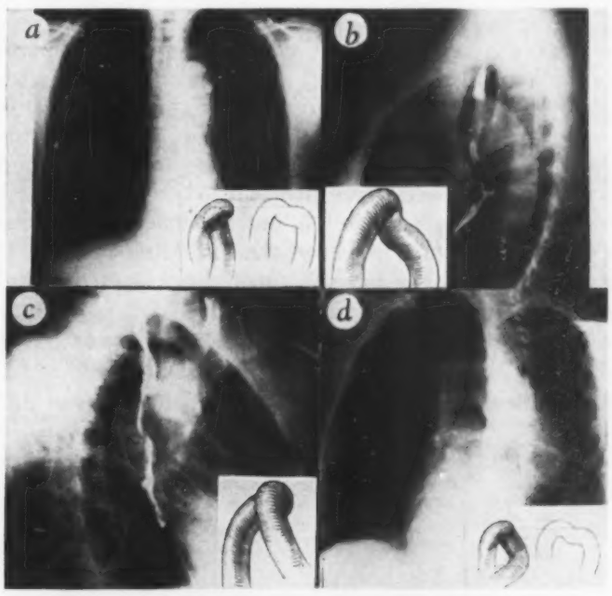

Fig. 1.—Roentgenograms of patient in case 1. Posteroanterior view, *a*, shows what appears to be a mass above aortic knob. Diagram indicates that the "mass" actually is the aortic knob, whereas what appears to be aortic knob is the segment of aorta beyond kink. Pronounced density at this point results from segment of arch beyond kink being seen "end on." Lateral, right anterior oblique, and left anterior views of aorta are shown in *b*, *c*, and *d*. The diagrams are self-explanatory. Note that aortic impression on barium-filled esophagus is made by segment of aorta beyond kink.

pressure in the arms and legs was normal. In a posteroanterior roentgenogram of the thorax, a small mass appeared to be projecting to the left at the level of the aortic arch (fig. 2*a*). This mass could not be disassociated fluoroscopically from the aortic arch. It showed evidence of pulsation, but it was impossible to tell whether the pulsation was transmitted or expansile. Therefore, angiocardiography was performed, which demonstrated that a peculiar buckle of the aortic arch was responsible for what appeared to be a mass (fig. 2*b* and *c*).

In another of the six cases there appeared to be some elongation and torsion of the aorta below the level of the kink, accentuating the abnormal appear-

ance. With this in mind, we reviewed roentgenograms taken at the clinic during the last several years for which the designations "torsion of the aorta," "aneurysm of the thoracic aorta," and "left mediastinal mass" have been used. We suspected that we might find other instances of kinking of the aorta in which torsion had so distorted the appearance of the roentgenogram that it might simulate either a mass or an aneurysm. Also, we were interested to know what occurs in the region of the ligamentum when the thoracic aorta undergoes pronounced elongation.

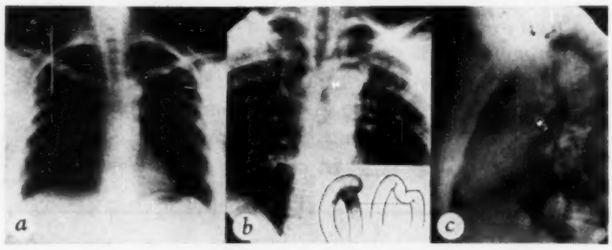

Fig. 2.—Roentgenograms of patient in case 2. Posteroanterior roentgenogram, *a*, shows double shadow at level of aortic knob. This could be interpreted reasonably as a mass adjacent to aortic knob or as aneurysmal dilatation of left subclavian artery. Angiocardiogram, *b*, in anteroposterior projection shows that the "mass" actually is aortic knob. Lateral angiocardiogram, *c*, indicating nature of aortic deformity. Arrows indicate highest level of aortic arch.

In the usual case of elongation of the aorta, the vessel takes a wide, smooth sweep over the left main bronchus and down the left paravertebral region, with enlargement of the "aortic window" (fig. 3). As the sweep of this arc increases in old age, we would surmise that either the intimate relations of the arch and left pulmonary artery are little disturbed or the tissues of the ligamentum stretch and degenerate without exerting a limiting effect on the unfolding process. If in certain cases the ligamentum did not stretch or degenerate, one might suspect that an elongated or tortuous aorta would be buckled at the site of insertion of the ligamentum. It is likely that the kink in a tortuous aorta described by Rösler and White [5] was of this

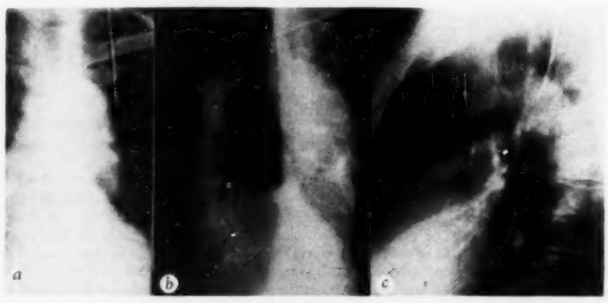

Fig. 3.—Roentgenograms showing, *a*, posteroanterior; *b*, left anterior oblique; and, *c*, lateral views of thorax demonstrating usual, smoothly rounded contour of a tortuous aorta.

nature. As the result of examination of many hundreds of roentgenograms, we found four instances of kinking of a tortuous aorta in the region of the ligamentum. One such case is presented.

Case 3.—A 52-year-old man came to the clinic because of hypertension. The blood pressure was 270/160 mm. Hg. Murmurs were not audible. Pulsations in the femoral artery were strong and not suggestive of coarctation. A roentgenogram of the thorax was suggestive of a mediastinal mass, possibly an aneurysm or a tumor (fig. 4*a*). Fluoroscopy and oblique and lateral roentgenograms showed a kink in the aorta in the vicinity of the ligamentum arteriosum (fig. 4*b* and *c*). The aorta was tortuous and elongated, with some dilatation immediately beyond the kink.

Clinical and Roentgenographic Observations

There is little in the literature on kinking of the aortic arch. Fewer than 30 cases have been reported or referred to.[6] It is likely that at least one of these cases has been reported twice. The best authenticated cases are one in which surgical exploration revealed the kink in the aorta to be at the site of insertion of a short patent ductus arteriosus [2] and one in which a retrograde aortogram revealed the kink to be at the site of a conically obliterated ductus arteriosus.[4a] The remarkable similarity of most of the published cases to each other would suggest that it is reasonable to assume that they are identical in cause to the two cases just mentioned. Roentgenologically, aortic kinking is of interest in that it so commonly simulates a mediastinal tumor. In the reported cases, as well as in some of our own, the practical significance of angiocardiography or retrograde aortography has been demonstrated, thereby obviating surgical exploration.

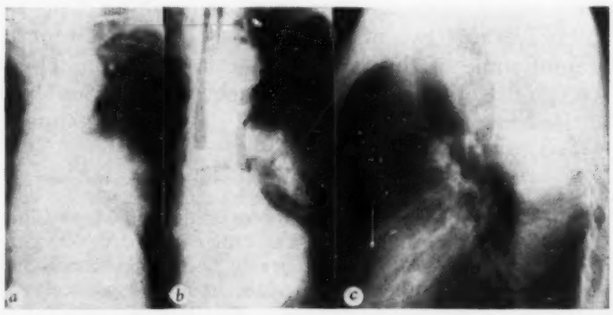

Fig. 4.—Roentgenograms of patient (case 3) with severe hypertension. In posteroanterior roentgenogram, *a*, there appears to be a large mass at the left hilus. Heavier penetration, *b*, shows the "mass" extending down behind the heart. Lateral view, *c*, shows aorta kinked at level of left main bronchus (ligamentum); the "mass" is due to pronounced torsion and moderate dilatation.

The deformity of the aorta frequently seen in coarctation [7] is closely simulated in some of these cases, especially on posteroanterior roentgenograms. This has given rise to the afore-mentioned designations of "pseudocoarctation" and "subclinical coarctation," terms that are not satisfactory. In their favor can be cited examples of patients with unquestionable coarctation who have lived to middle or old age without much disability and with relatively good pulses in the legs. However, to use the term "subclinical coarctation" for cases of kinked aorta in which other clinical or roentgenologic features of coarctation are absent is to make the untenable implication that the kinked aorta is a type of coarctation without coarctation. The fact that the kinking of the aorta occurs where the ligamentum arteriosum attaches to the aorta does not allow one to assume that such kinking is pathogenetically related to true coarctation. It is more likely that the aorta is kinked at that particular site because it is the logical location where traction would occur on the aorta. The predisposing cause for the kink is the traction of the ductus or ligamentum; the exciting cause is unknown but probably is related to an un-

usually short ligamentum or ductus or an unusually long aortic arch. Thus, we believe that "kinking" or "buckling" of the aorta is a preferable term and that the condition probably has nothing to do with true coarctation. Instances of "pseudocoarctation" could just as well be called "pseudotumor" because the posteroanterior roentgenograms in so many of them suggest the presence of a tumor. Furthermore, such lesions are never associated with notching of the ribs.

The usual presence of systolic murmurs in these patients if of interest. Nine of the 10 patients had systolic murmurs at the base of the heart, probably the result of turbulence of blood in the region of the aortic kink. In 2 of our 10 patients, murmurs had been detected in childhood and the patients had been told they had "leakage of the heart." In one of the patients referred to by Di Guglielmo and Guttadauro,[4a] the murmur had resulted in an inaccurate diagnosis of congenital heart disease.

Differential Diagnosis

The appearance of a mediastinal mass on the roentgenograms in their first case of kinked aorta led Souders and associates [2] to make a diagnosis of Hodgkin's disease. In three of the cases subsequently described in the literature, the suspicion of a mass was aroused by the appearance of the posteroanterior roentgenogram. Angiocardiography was performed in all these patients and revealed the true nature of the condition. As so commonly occurs, evaluation of a mediastinal mass is usually no clearer after fluoroscopy than it was before. In a recent study, Tucker and Bruwer [8] found that the interpretation of the roentgenograms was more often correct in the evaluation of a smooth-contoured left hilar mass than was the fluoroscopic interpretation. Furthermore, angiocardiography was vastly superior as a method of differentiating a mediastinal mass from a vascular shadow. In kinked aorta, a good oblique (usually a left anterior oblique) roentgenogram or a lateral roentgenogram usually will reveal the true state of affairs. If any further doubt remains, angiocardiography should be done.

Roentgenograms in cases of kinked aorta frequently give an appearance in which the aortic deformity simulates that seen in many cases of true coarctation. This similarity becomes more pronounced in those cases of true coarctation of the aorta in which roentgenologic evidence of notching of ribs is absent. Fluoroscopy may carry the similarity further, in that some aortic dilatation may be present beyond the anomaly in both conditions, and this can be well demonstrated by the impression of the dilated segment on the barium-filled esophagus. The differentiation from coarctation of the aorta depends on such findings as palpable collateral vessels, diminished pulses in the abdominal aorta and legs, hypertension in the upper extremities and disproportionately low blood pressure in the legs, and evidence of left ventricular enlargement.

Aneurysms may have to be differentiated, which requires investigations such as serologic tests for syphilis, inquiries into previous thoracic injuries, evaluation of oblique roentgenograms, and angiocardiography. Congenital aneurysms in the segment of the aorta between the origin of the left subclavian artery and the ductus arteriosus or ligamentum arteriosum usually show characteristic roentgenographic features.[9]

The murmurs that usually occur in patients with kinking of the aorta may lead to an unwarranted diagnosis of either congenital or acquired heart disease. Heart disease has been present in several cases,[10] but in most instances the murmurs are attributed best to turbulence of the blood stream in the kinked segment of the aorta.

Summary

Ten cases of kinked aortic arch have been encountered at the Mayo Clinic. The points of particular interest in this condition are that (1) it may resemble a mediastinal tumor on the posteroanterior roentgenogram; (2) it may bear roentgenographic resemblance to the aortic deformity that may occur in coarctation; and (3) the patients frequently have systolic murmurs that may give rise to an erroneous diagnosis of organic heart disease.

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Intestinal Obstruction in Infants.—The most common cause of intestinal obstruction in the newborn is atresia. In a collective review of the subject in 1951, Evans estimated that each year 3,000 babies in the United States and 50,000 babies in the world are affected with this condition. The most commonly accepted etiologic theory is that during the fifth to twelfth week of intrauterine life the intestinal tract goes through a solid stage for a short period, that vacuoles then appear which coalesce and reestablish the lumen, and that an arrest in this vacuolization causes the atresia. Until recently, obstruction in the newborn was almost always fatal. Up until 1950 there were only 125 successfully treated cases recorded in the literature. Recovery is not a rarity today, but the mortality from intestinal obstruction remains high. Prematurity and associated anomalies are certainly the greatest cause of the high mortality, and not much can be done about those factors; but delay in diagnosis and treatment, which is a considerable factor, is subject to correction. Physicians who attend infants must constantly keep obstruction in mind.—O. Tuschka, M.D., and D. Hyde, M.D., Intestinal Obstruction in the Newborn, *California Medicine*, April, 1956.

ADVENTURE IN PEDAGOGY

George E. Miller, M.D., Buffalo

• *Twelve medical faculty members, with the conviction that medical education can be improved, undertook an investigative analysis of fundamental educational principles. In 20 hours of relatively unstructured discussion, using a chairman trained in sociology and anthropology and the dynamics of learning, there resulted a broadened understanding of and change in attitude toward the teaching processes being practiced. A few of the conclusions arrived at revealed that teachers may be major obstacles to student learning; that people learn what they want to learn; and that learning is largely an emotional experience. The student must be helped in wanting to learn rather than just to know.*

The results of this preliminary study, while giving certain participants a new self-awareness along with a new sensitivity to student needs, have made teaching far more difficult than before but have provided a personal satisfaction not previously known.

The long history of medical education on this continent has been marked by many turnings, which might lead an uninitiated observer to describe the path from student and preceptor of 1750 to the student and preceptor of 1950 as the completion of a full circle. The more generous would look upon it as a spiral in which each step was supported by those that went before. Among those steps three would stand out boldly: the steady increase in required years of formal education; the geometric progression of data to which the student is exposed, data that have been compounded in complexity as the contributions of chemists, mathematicians, and physicists have been incorporated into medical lore; and the fractionation of man into his component parts, each of which has been claimed by a belligerent corps demanding a larger share of the student's time. All of these things, Jay Tepperman has said, give our students a strange resemblance to "Belgian geese being fattened for *pâté de foie gras.*" It is perhaps a resulting sense of discontent that today has led us to reverse the field busily, to resynthesize the whole man with the help of sociologists, anthropologists, and clinical psychologists who have invaded our halls (to our enormous benefit, I need not add), and to slash away at course content, hoping our excisions will not remove some vital rung of the ladder a student must climb. Even the traditional structure of curriculum has been shaken by the demonstration that Western Reserve students, too, can pass national boards.

Need for Improvement in Quality

At the heart of this varied violence lies a conviction that improvement in the quality of medical education can be achieved. Yet there seems a curious omission in our methods. As physicians we regularly employ consultants who illuminate a problem by the special body of information or the particular competence they enjoy. But in our struggles as educators we ignore with equal regularity the potential contribution of those who have devoted their professional lives to the study and development of educational principle and practice. In all of higher education, including medicine, a degree and a clean collar are looked upon as adequate preparation for the heavy responsibility of teaching. Faced with this responsibility, most of us play it by ear and very shortly develop firm and unshakable belief in the propriety of what we are doing. This state of affairs is encouraged by the fairly general, if tacit, agreement that, if a man is appointed to a teaching position on the basis of scientific productiveness or professional competence, his proficiency as an educator will take care of itself. Perhaps the time has come to face up to the fact that many of us do not know what we are doing as teachers, that those of us who do learned it accidentally and cannot readily communicate it to others.

Investigation of Teaching-Learning Process

Such a confession is about as easy to make as an admission that one has no sense of humor. But, after two and one-half years of preliminary discussion, 12 University of Buffalo School of Medicine faculty members reached a point of willingness to accept this as a preliminary hypothesis. And with relatively open minds we set out to learn whether anything might be done to modify our ignorance of fundamental educational principles, if such actually existed.

In the selection of a guide to lead us through this wilderness, we were unusually fortunate. Nathaniel Cantor is administratively designated as the chairman of the department of sociology and anthropology in the college of arts and science and the school of education, but his interest and study has been the dynamics of learning. His vivid personality and disregard of professional jargon immediately dissipated the kind of communication barrier that at least three other medical schools encountered when they sought similar guidance from professional educators. Our group spent 20 hours together in relatively unstructured discussion, using as a resource only Cantor's book "The Teaching-Learning Process."[1] The broadened understanding and change in attitude that grew out of the experience was most dramatically demonstrated in tape recordings of the sessions. Although part of the impact is lost in transcription, I would like to describe several things that came sharply into focus.

We recognized very early that people learn what they want to learn. Of the many illustrations that immediately spring to mind, I might cite the student who

From the University of Buffalo School of Medicine.

Adapted from a paper read before the Subsection on Medical Education of the American Federation for Clinical Research, Atlantic City, N. J., April 29, 1956.

has difficulty recalling the sequence of the Krebs cycle but may have at his finger tips the batting average of every player in the major leagues and the telephone numbers of 12 attractive girls. Shall we call him stupid, perverse? Or shall we dismiss the whole matter by remarking that he must be poorly motivated, since anyone who wants to be a physician should also want this piece of information. Such a comment relieves the teacher of any further responsibility, but it helps the student very little. It also implies that the teacher can decide what the student should want to know, which is patently absurd. But it does not deny the instructor an opportunity to help the student to want it. Let the teacher who will, establish a relationship between learning the Krebs cycle and becoming a physician, and he will be unable to stop the student from learning it eagerly and enthusiastically. For motivation relates not only to the distant goal but to each of the stepping stones that lead there. The teacher who asks the student to accept the relationship on faith asks more than he himself would be willing to give.

A closely related principle reminds us that knowledge and learning are different. In any medical faculty there is always a large body of opinion that emphasizes the importance of facts and encourages the accumulation of factual data through the simple device of making them the subject matter of examinations. This is done with complete sincerity in the belief that education is an intellectual exercise. But with a little insight the least of us could amass in a single hour an overwhelming body of evidence that true learning is largely an emotional experience. Most of what we learn at medical meetings vanishes overnight. The things we retain are those items that somehow kindle a spark, arouse curiosity, or incite anger or disagreement or laughter. And for each of us these things are different, for learning is also very personal. To concentrate upon facts, arbitrarily selected, as cold and bloodless things is to deny their vitality. Facts are too important to pass as idle conversation. We should not possess them. They should possess us.

We also reached agreement that true learning implies change. And here dilemma is encountered, for the first law of thermodynamics, the law of inertia, applies with equal force to the area of learning. In the course of 10 weeks, participants in these seminars became painfully aware of this principle. As some understanding of the dynamics of learning was gained, it was clear to all that we spent a good deal of time defending our own position on education, resisting change by any method we could devise, including the classic techniques we had seen our students use: tardiness, failure to read material previously agreed upon, shifting the focus of discussion when it came close to tender spots, obscuring the issue by vagueness, and indulging in hairsplitting, self-deception, and hostility.

But, under the skillful guidance of a leader who made no moral judgments of these tactics, who accepted them as an inevitable part of the learning process, who did not deny them by authoritarian dictums, progress and change took place, in a direction and at a pace that was acceptable to the group. The unskilled leader, failing to recognize these things, might have demanded that the group move in his direction, at his pace, and would have succeeded in blocking true learning by providing an object upon which resistance to change could be attached. It is frightening to recall how common this practice is in orthodox teaching, where change is expected, but only in the direction that the teacher, the authority, decrees.

If the first three principles are sound, the fourth, that true learning requires freedom, follows naturally. Whenever freedom in education is discussed, however, there is immediately an outcry from those who equate freedom with anarchy. Lest we fail to understand how men who have lived in a democracy can complete such an equation, we might recall that our educational system has usually been authoritarian (even in the heyday of free electives) and that teachers, too, resist change. Freedom is used here in the Websterian sense as the state of not being subject to an arbitrary external power. But who would deny that medical faculties in general, and physicians in particular, are often arbitrary in their exercise of power? A curriculum that is content-and-examination-centered provides freedom for the student to grow in only one way. And those schools that have liberalized their curriculums provide only as much freedom for individual student development as faculty members will allow. The usual tendency of a faculty is to encourage growth in its own image. The student who does what he is told, gives back the "official pitch" when he is called upon, and performs his work without question is usually looked upon as a good student, while the one who analyzes and challenges faculty statements and accepts nothing without supporting evidence is tagged an annoying little beast who probably needs a psychiatrist. The encouragement of this kind of student independence may make life considerably more trying for the teacher. Traditional teaching is relatively easy, but helping a student to learn is an exhausting occupation.

Role of Teacher

Examined in these terms, a more precise definition of the present role of the teacher in the learning process forces the conclusion that teachers may be major obstacles to student learning. It took participants in this seminar 12 hours to admit this openly. It would be unrealistic for me to expect a reader to accept it in 12 minutes. But the painful self-examination led us inevitably to such a terminus. Why? Because teachers of medicine are very much like everyone else. They have developed not only an understanding of a large body of data and a variety of technical skills but also an image of themselves. And whatever threatens this image is suppressed. The teacher preaches, and the student responds. The right answer is the answer the teacher wants, and both teacher and student often fail to recognize that true learning begins with not knowing the answer.

Students detect this long before they get to medical school, but most medical school teaching does nothing to suggest the desirability of change. How can they believe we encourage independence, when in biochemistry they are taught to reply that diabetes is the

result of an overproduction of glucose while in physiology it is due to underutilization, and when in pediatrics only digitoxin can be used to treat congestive heart failure and in medicine only whole leaf digitalis? If they ask why these things are so, they are told in essence, "Because I say so." Not this crudely, I grant. But if one listens to tones, to shadings, to the meanings that words conceal rather than the words themselves, it becomes evident how rarely a teacher allows the image of himself to be threatened. Instead we use students to support this image. We expect them to defer to us, to respect and admire us, to mimic us, and to do well when examined by others on the material we are presumed to have taught them. And instead of giving them the help and encouragement they need, we exploit them for our own needs again and again.

The professional responsibility of the teacher should be obvious. It is based upon a fundamental respect for the individual student, an awareness of the dynamics of learning that must allow each student the freedom to be different and that encourages challenge. It is concerned with helping the student to want to learn rather than to know. It involves an honest effort to understand the student rather than to judge him. This should be easier for the physician-teacher to understand than for almost any other. The physician's occupation is to provide a professional service to patients. He attempts to understand their problems and to be of use in their solution. He makes no moral judgment of the illness and suffers no offense or loss of prestige if the patient ignores his advice or fails to respond to his best therapeutic efforts. He is secure in his role. It is this kind of professional service that the teacher owes the student and, if he gives less, he is a fraud.

While this indictment is broad, it does not include all medical teachers. And, of those it does embrace, a significant number might say that they would like to teach in this understanding, challenging, encouraging way but are forced by departmental policy, curriculum arrangement, state and national board examinations, or some other restriction to conduct themselves in an orthodox, authoritarian fashion that they recognize as second rate. This brings me to the final point, the nature of compromise. There are realities that we all must face. There are limits beyond which we cannot go, limits of time and space, external and internal forces that must be respected. To recognize such limitations, however, is quite different from using them as an excuse for not doing something you really do not want to do anyway. As Cantor puts it, "Even in a strait jacket there is room for some movement." We do what we can when we can do it. But first we must understand ourselves.

Results of Investigation

One might properly ask what happened to the faculty members who went through this experience. I can answer that none of them has been dismissed for heretical teaching. We have no quantitative measure of their change nor any evaluation of its quality. But 9 of the 12 have a new awareness of themselves, a new sensitivity to their students' problems. They find teaching a much more difficult task than it was before, but it provides them with a satisfaction they had not previously known. And they recognize their limitations, their need for further growth and development as teachers.

Because of this outcome we have been encouraged to travel further down this avenue, which seems to lead toward an important juncture of the problem in medical education. With generous support from the Commonwealth Fund, a more elaborate program has been developed, which will allow members of our own faculty, with selected visiting faculty from other medical schools, to explore in greater depth such fundamental principles of education as these and to put them to the test of practice in a medical context. Under medical school direction, an annual series of seminars and workshops, beginning in September, 1956, will continue to use the wealth of skill and information in the school of education and college of arts and sciences that might contribute to a solution of the problems we face as medical educators.

In addition to the teaching-learning process, it has seemed worthwhile to investigate, in such seminars, the nature of the medical student, who he is, and where he comes from, what his background is in psychological and socioeconomic terms, how the selection process influences his development before he arrives in medical school and the kind of response he makes to a medical curriculum, what the effect of the medical school environment is upon his ability to learn and to grow, and what kind of person he becomes professionally and socially. Some attention will also be given to the evolution of higher education in general and medical education in particular, for it is difficult to comprehend where we are or where we are going without some knowledge of where we have been. The broad field of evaluation of the outcomes of learning in a medical setting will also be considered: Are our present methods truly evaluation or simply measurement of acquired information? What are the principles that underlie the selection of a specific technique? How may the variety of evaluation techniques be most effectively incorporated into the educational pattern of medicine? Finally, some attention will be devoted to the broad subject of communication, the methods and materials of instruction. But only finally, for methodology is simply handmaiden to principle; without principles methods become empty and isolated efforts.

Is it all worthwhile? My biased opinion is often balanced by those who call this talk of educational principles nonsense, who remind me that the work of the teacher is to cram into the student as many facts as possible in the time allotted. (They further point out that the time allotted their subject is not enough.) And they may be right. But while they man their bastions against attack, we, the enemy, will be having a rousing adventure in pedagogy.

3435 Main St. (14).

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ANTIGENIC POTENCY OF POLIOMYELITIS VACCINE

INFLUENCE ON DEGREE AND DURATION OF VACCINE EFFECT

Jonas E. Salk, M.D., Pittsburgh

• *Groups of children who had been given different doses of a poliomyelitis reference vaccine A in the spring of 1955 were all reinoculated in the spring of 1956 with the same dosage of vaccine J. Quantitative studies demonstrated both the persistence of the antibody over the course of a year and the increase in titer in response to the third dose given at this time. To secure an optimum response to the booster injections it was necessary to give an adequate dose in the primary antigenic stimulation. After the booster injections the antibody titers equaled or exceeded those found in a group of convalescents from recent type 1 paralytic poliomyelitis. The nonliving, nonmultiplying virus antigen reproduced the serologic effects of naturally acquired infection-immunity. Seven lots of commercially prepared vaccines administered to 186 subjects, compared with five lots of laboratory-prepared vaccine in 115 subjects, proved to be equally satisfactory as to potency and uniformity in raising the antibody titer. In 4,617 subjects who received three inoculations, only 224 had antibody at a level of 1:64 for all three types before inoculation, but 4,548 had antibody at this level for all three types after the third inoculation. Six lots of commercially prepared vaccine were used in a study of 214 subjects as to the advantages of a second inoculation, and the rise in titer produced by the second inoculation was clearly demonstrated for each lot, so that a low proportion of response to the first dose was converted to a high proportion of response by the second dose.*

As a result of recent studies on vaccination against poliomyelitis, much information on the immunology of this disease has accumulated. The purpose of this paper is to present a number of facts on the basis of which immunologic thinking has been clarified and a practicable method of immunization devised. Before presenting the immunologic problems, it might be well to review very briefly the effect of the experience of the past year upon the question of safety, this being the foremost of the two considerations of practicality, i. e., safety and effectiveness.

Vaccine Safety

It is self-evident that, for vaccination against poliomyelitis to be practicable, it must not be attended by any risk that would tend to discourage its use. In preliminary studies and in the field trial it was established that antibody production and immunity can be induced without risk of inducing paralysis; this has been reaffirmed in an accumulating experience in the United States and in other countries. It is now clear that this vaccination procedure does not necessarily possess an inherent risk, and this is true regardless of the nature of the strains of virus employed.[1]

The destruction of infectivity of poliomyelitis virus by formaldehyde is an orderly chemical process and, when properly carried out, with due attention to details and to the principles involved, results in a reliably predictable effect.[1] Although safety tests are performed on a relatively small fraction of each batch, they provide a substantial degree of confidence. In addition, the index of safety for each batch in a given series can be extended, far beyond the degree of assurance that the test of a single batch provides, by using the safety test as an indicator of consistency, or as a measure of reliability, of the manufacturing process. The concept of the "built-in safety factors" of the process, together with the required tests applied during processing and at the end, and, of equal importance, the reasonable interpretation of test results, have resulted in an order of safety that extends by a considerable margin the degree of confidence provided by the results of tests of each individual vaccine lot.

The several inferences [2] that the theoretical considerations were unsound, or were not applicable under conditions of large scale manufacture, seem not to have been supported by time. These inferences were drawn from the misinterpretation of failures of inactivation as having theoretical significance. When the occurrence of inactivation failures was interpreted as indicating need for attention to technical details and when corrections were introduced, consistency was achieved; the importance of consistency as an applicable requirement for safety then became generally accepted.[3]

Immunologic Objectives

Even though it will not be necessary for elimination of epidemics of poliomyelitis to await full vaccination of all susceptible persons, the nature of the infectious process, and of the immune mechanism, is such that it would be desirable for vaccination to be effective in each individual inoculated. It would be desirable, too, that there be a high degree of confidence that the protective effect, once induced, persists for long periods of time—preferably for the lifetime of the individual. Although it is too soon to be concerned, in a practical sense, about duration of immunity in terms of lifelong effects, since the full potential of the initial effects is still to be demonstrated, there is, nevertheless, sufficient basis for considering, from the theoretical viewpoint, whether immunity is likely to be of long or short duration. Data now available, when considered in the light of the immunologic principles and mechanisms involved, permit interpreta-

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tions and predictions concerning durability of immunity and probable degree of effectiveness. Time will reveal the reasonableness of any predictions that may be inferred and the extent to which the data now available have been critically examined and soundly interpreted.

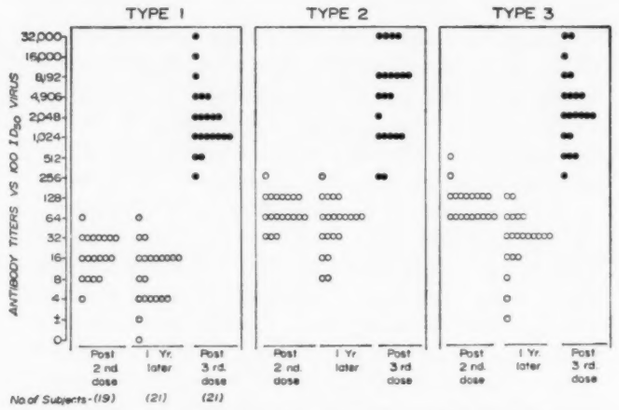

Fig. 1.—Persistence of primary response and degree of booster response. Two 1-ml. doses of reference vaccine A given two weeks apart and 1-ml. dose of vaccine J given one year later in children without antibody for any type before vaccination (± = trace of antibody at 1:4 dilution; 0 = antibody level lower than 1:4).

Mechanism of Immunity

Many studies have shown that immunity to paralysis exists when antibody is present in the serum.[4] More recently it has been revealed [5] that, if a state of immunologic hyperreactivity exists, immunity to paralysis can also exist, even in the absence of a demonstrable level of circulating antibody. This observation has now been confirmed by others [6] and reaffirmed in the further extensions of our studies.[7] Hyperreactivity must be of such degree that, after contact with virus, antibody formation will begin sufficiently rapidly to intercept virus before it can reach the central nervous system. Since the incubation period after natural exposure, and before invasion of the central nervous system, is 10 to 12 days,[8] and sometimes longer, it is understandable how a mechanism such as this does operate in the prevention of paralysis in poliomyelitis. As pointed out many years ago by Paul,[8] and referred to again by Bodian [9] and by Horstmann,[10] paralysis in poliomyelitis is a secondary consequence of a primary systemic infection. Thus, if immunologic hyperreactivity is induced by vaccination, then subsequent contact with the virus under natural circumstances should occur without risk of paralysis, since accelerated antibody formation should prevent invasion of the central nervous system, even though the pharyngeal or intestinal infection had not been prevented.

There is evidence from animal experiments that indicates that just demonstrable levels of serum antibody appear to be adequate for preventing invasion of the central nervous system. However, evidence from field tests of the prophylactic effect of gamma globulin [11] and of a single dose of vaccine [12] suggests that levels of antibody just below the range of detectability are also protective against paralysis. Further evidence, referred to above,[5] illustrates that, in cases where antibody is not detectable, paralysis may be prevented if re-formation of antibody is sufficiently accelerated to provide effective concentrations prior to the time when invasion of the central nervous system might occur. Depending upon the degree of immunity engendered, infection may be limited in such a way that paralysis does not ensue; however, if the intensity of the immunity induced is sufficient, virus multiplication at the portal of entry may be limited even to the extent that the establishment of infection is prevented.[13] Evidence in support of this has been reported by Howe [14] in studies with chimpanzees.

Immunologic Effects of Vaccination

Although there is wide variation in antibody response among individuals, it is evident from available data that vaccine potency does not influence the degree of variation in response among individuals, even though it does affect the level at which the variations occur. When vaccine dosage is varied within certain limits, the mean response induced varies with the size of the dose. Because of the wide range of variation of individual responses, discrimination between vaccines, with respect to relative potency, cannot be made by studies in single subjects; studies in groups of reasonable size will reveal the quantitative aspect of the dosage-response relationships.

In studies reported previously, it was shown that vaccine potency affects the degree of primary antibody response. However, it was not known to what extent the potency of vaccine used for primary stimulation affects the degree of secondary, or booster, response. Accordingly, groups of children who had been given different doses of reference vaccine A, in the spring of 1955, were all reinoculated in the spring of 1956, with the same dosage of vaccine J. The kind of results obtained are shown in figure 1, which illustrates the levels of antibody observed two weeks after the second dose of 1 ml. of reference vaccine A, the persistence over the course of a year, and the response to the third dose given at this time. The findings, following each of the different dosages of reference vaccine, are summarized in figure 2, which indicates the geometric

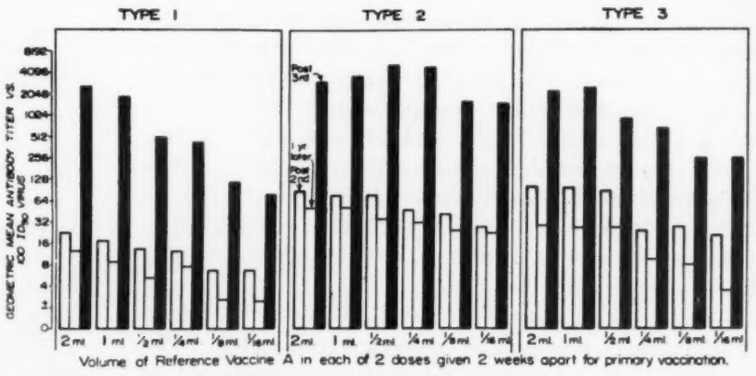

Fig. 2.—Influence of primary vaccine potency on booster dose response one year later. Groups of 20-30 subjects with no prevaccination antibody given different doses of reference vaccine A and 1 ml. of vaccine J given one year later.

mean levels observed at each of these intervals. It is apparent from the data for types 1 and 3 that the degree of response to the booster injection was affected by the dose of vaccine used for primary antigenic stimulation. This relationship is less evident for the type 2 component. Although the reason for this difference is not fully understood, it may, in part, be explained if the concentration of type 2 antigen in this vaccine is in sufficient excess so as to have shifted the range of the response to the plateau portion and away from the steep portion of the sigmoid curve that usually describes dosage-response effects of this kind. Attention has been called previously to the difference in antigenic behavior of the type 2 antigen insofar as it seems to exert a more potent effect than the types 1 and 3 antigens.

Antibody response after the third dose in each person is shown in figures 3 and 4. It is of interest that all in these groups developed a measurable level of antibody after three doses of vaccine, even though there was as much as a thirty-two-fold difference in potency of the material used for primary vaccination. The data in figure 3 show, also for comparison, the levels of antibody observed in a group of recent convalescents from type 1 paralytic poliomyelitis. The vaccine of higher potency induced levels of antibody equal to, or greater than, those observed after a naturally acquired paralyzing infection, whereas vaccine of lesser potency induced effects that were measurably less than those induced by infection. Thus, it is evident that it is possible to equal or to exceed the immunologic effects that follow infection, if attention is given to the quantitative factors

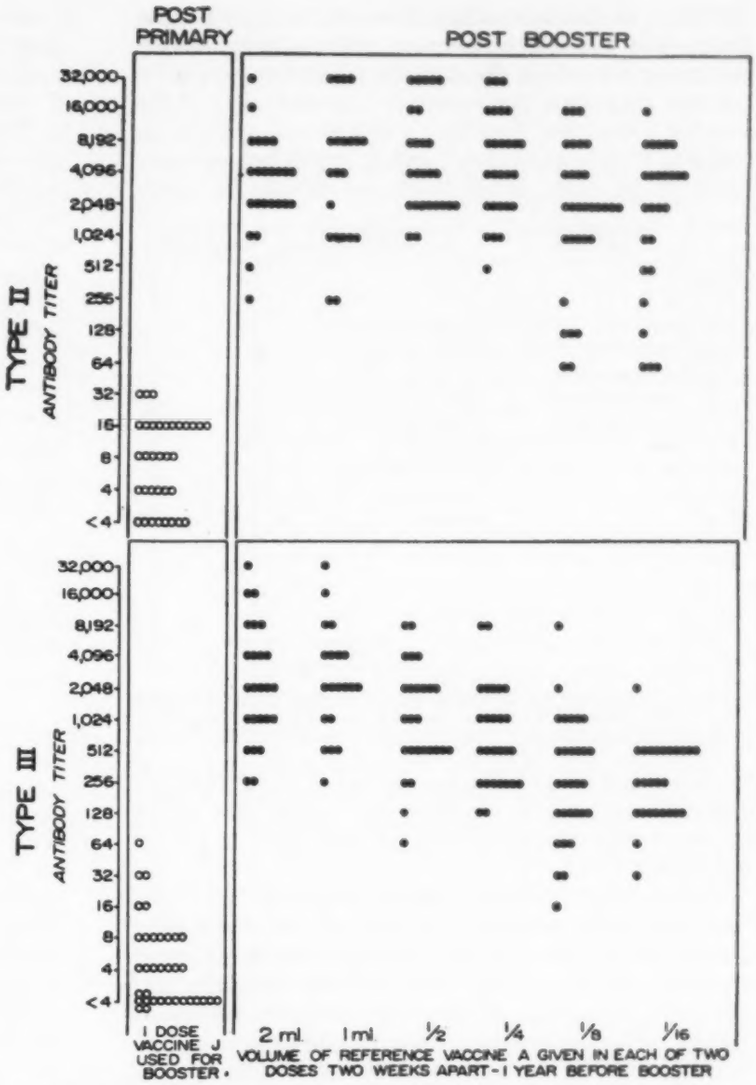

Fig. 4.—Antibody response (types 2 and 3) after booster dose in relation to potency of vaccine used for primary inoculation.

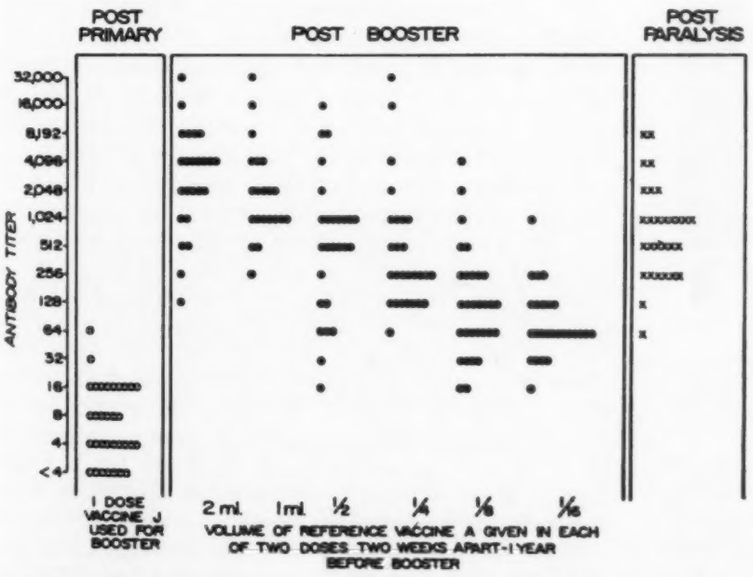

Fig. 3.—Type 1 antibody response after booster dose in relation to potency of vaccine used for primary inoculation and as compared with antibody titer following natural infection.

that influence immunologic reactivity to a noninfectious vaccine. It would follow from this, therefore, that it is not necessary to use infective virus to simulate the effects of naturally acquired infection-immunity, since the immunologic effects can be reproduced by a nonliving, nonmultiplying virus antigen. This is not a new concept in immunology, but one that has not been as widely accepted as the evidence appears to warrant.

To illustrate the extent to which commercially produced vaccine can and has induced effects similar to those described for laboratory produced material, a comparison is shown in figure 5 to illustrate the levels of type 1 antibody that developed after the third dose in children with no prevaccination antibody for any type who had, one year earlier, received two doses, two weeks apart, of vaccine produced for general use. There were seven lots of commercial vaccine and five lots of vaccine

produced in this laboratory. The vaccine used for the third dose was one of average potency from among the group for which the data on laboratory produced vaccine are shown; the response to a single dose of the vaccine J used for "booster" is also shown in figure 5, and was shown in figures 3 and 4. It will be necessary to study in more detail those individuals in whom

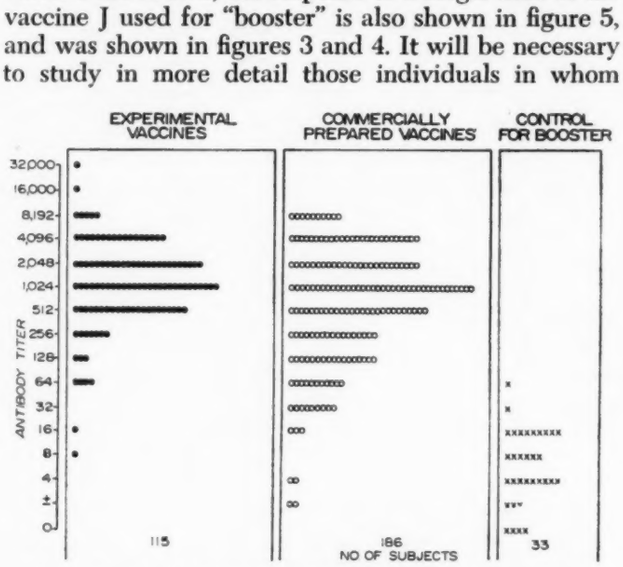

Fig. 5.—Comparison of experimental and commercially prepared vaccine. Type 1 antibody titers after booster dose with vaccine J in groups with no prevaccination antibody given two primary doses with vaccines indicated.

there seemed to be less response than for the average, and to determine, if possible, the factors that might be responsible; there has not yet been time to repeat these tests.

The point of particular significance is the fact, evident from an examination of data on the seven individual vaccine lots (fig. 6), that the variation in type 1 potency of five of the seven lots did not differ significantly from that of the experimentally produced vaccine. Thus, it would appear that the potency test, as employed for discriminating between lots of vaccine, could be expected to produce the degree of consistency here observed, when the criteria used to guide selections are those suggested by these data.

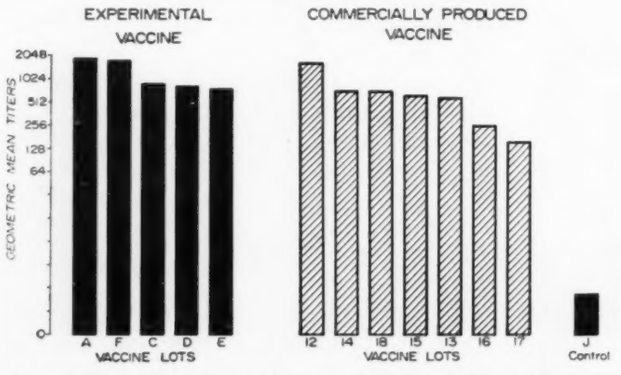

Fig. 6.—Comparison of experimental and commercially produced vaccines. Geometric mean titers of type 1 antibody after booster dose with vaccine J in groups given two primary inoculations with vaccine lots indicated.

As was to be expected, and as is clear from the foregoing data, individual variation in responsiveness to vaccination exists, just as does variation in immunologic response to infection; however, it is also clear that the significance of such variation, in terms of the prevention of disease, can be reduced by the administration of sufficiently potent vaccine and by adequately spaced multiple inoculations. Thus, there are some individuals who do not respond to the first dose of vaccine but who would have responded if potency had been greater. On the other hand, the use of multiple inoculations provides a more efficient way of insuring uniform response—a fact well known in immunology and demonstrated again in man and in experimental animals.

The objective to be achieved, either by increasing antigenic potency or by the use of multiple inoculations, is the conversion of all who have no antibody to any of the three types to a state in which they possess antibody to all three types. The degree of success that it has been possible to achieve in groups larger than those described in the data presented thus far can be illustrated by results of studies in groups consisting of more than 5,000 school children. A simplified procedure for determining antibody response was used, but one that puts vaccination to a particularly severe test. The procedure employed involved the determination of the presence or absence of antibody in a drop of blood from a finger-prick, tested in such a way that the positive or negative result indicated the

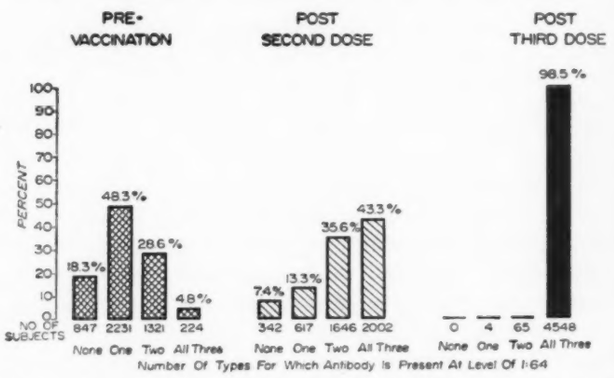

Fig. 7.—Percentage distribution of individuals with antibody titers of 1:64 or greater before and after vaccination; 4,617 subjects given two doses two weeks apart and a third dose one year later.

presence or absence of antibody in a serum dilution of 1:64 as measured against approximately 100 T. C. I. $D._{50}$ (tissue culture infectious doses) of virus of each type. Although a positive test for antibody indicated that it was present at a serum dilution of 1:64 or greater, a negative test did not necessarily mean that antibody for the particular type was not present.

From figure 7 it is seen that, before vaccination, of the 4,617 subjects who had received three inoculations and for whom blood test information was available, only 224 had antibody at a level of 1:64 for all three types; 1,321 had antibody for two types, 2,231 had antibody for one type only; and 847 had no antibody for any type detectable at a level of 1:64. After two doses of vaccine, given two weeks apart, there was a shift in pattern, which is shown in the center set of columns and which indicates a reduction in proportion of those with no antibody, or antibody for but one type, and an increase in the proportion of those with antibody for two or three types, at a level of 1:64 or greater. After the third dose, given one year later, the shift was such that 4,548 out of the total of 4,617, or 98.5%, had antibody for all three types, at this level.

The effects described were induced with the use of two doses, 1 ml. intramuscularly for each dose given two weeks apart, of commercially prepared vaccine, followed one year later by 1 ml. intramuscularly of laboratory prepared vaccine of average potency as compared with commercially prepared material. The vaccines used are the same as those referred to in figures 5 and 6.

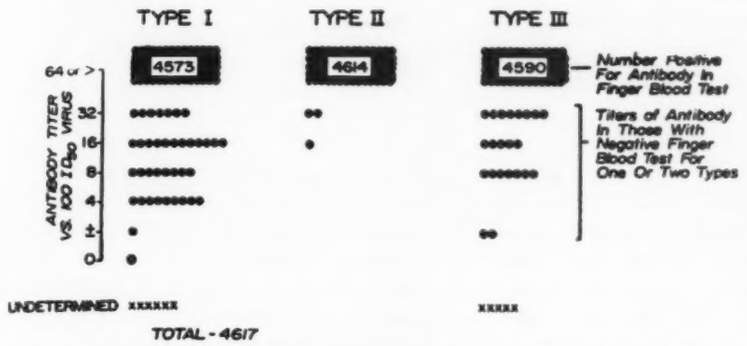

Fig. 8.—Antibody levels determined on samples of venous blood after three doses of vaccine in those who gave negative finger blood test for antibody at level of 1:64.

An effort was made to determine whether the 69 (fig. 7) in whom there was no detectable antibody for one or two types, at the 1:64 level, had antibody at lower levels of detectability. Accordingly, venous blood samples were obtained from all but 11 children; the results are summarized in figure 8. From these data it is clear that the separation of positives and negatives at a level of 1:64, using the finger blood test, greatly simplified the separation of those who needed more detailed study. Thus, a positive test for antibody at a level of 1:64 is indication of the presence of a substantial concentration of serum antibody; but, a negative test does not necessarily indicate that antibody is not present. In fact, in only one instance was antibody not detectable at a level of 1:4. Further investigation and studies are under way to determine the possible reasons for these results or for the low degree of immunologic reactivity, if these observations are confirmed, in all instances, upon retest.

The effect of the three doses in the 847 children (fig. 7) without antibody for any of the three types, at a level of 1:64, is shown in figure 9. It can be seen that there was a reduction to zero in the number with no antibody for any type, but 44 had no antibody, at a level of 1:64, for one or two types. The distribution of antibody titers in these individuals is as shown (fig. 9), and it is seen that antibody was detectable in all but one instance. Since all had responded with good levels to the type 2 component of the vaccine, these findings suggest that the poor responses were not due merely to a low capacity to respond but, also, to differences in relative potencies of the three types.

Effect of One and Two Doses of Vaccine

The advantage of two doses of vaccine, as compared with one dose, in terms of antibody response, is illustrated in figure 10. This shows the degree of response induced in groups of children who had no antibody for any type prior to vaccination and who were given two doses of vaccine four weeks apart. Six lots of commercially prepared vaccine were involved in this study. Titers of antibody were measured four weeks after the first dose and two weeks after the second dose.

In an effort to establish the significance of these measurements, an attempt was made to estimate the degree of correlation between protective effect and immunologic response to one dose of vaccine. Such information could be had from the 1955 epidemic in Massachusetts, caused by the type 1 virus. Studies were made, therefore, of the three lots of vaccine used in Massachusetts in the preceding spring. Children, with no preantibody to any type, were inoculated and antibody levels determined after one and two doses, given four weeks apart. These results are shown in figure 11, where it is seen that the low proportion of response to the first dose was converted to a high proportion by the second dose. It is reported that the protective effect of a single dose against paralytic poliomyelitis in the Massachusetts epidemic was 60 to 65%.[15] This degree of protection is greater than is the percentage response with antibody titers of 1:4 or greater, especially for lot 028849, which was used to a greater extent than the other two.

It should be kept in mind that a negative test for antibody at a 1:4 dilution of serum, according to the serologic method employed, indicates that antibody is not detectable in 0.06 ml. of serum when tested against 100 T. C. I. $D._{50}$. This is a severe test and does not exclude the possibility that virus neutralizing effect would be demonstrable if a larger volume of serum were allowed to react with the same or a smaller amount of virus. Since it appears that protection may be associated with levels that are too low to be measurable by the test that is employed, it would seem conservative to infer that antibody levels of 1:4 or greater could be expected to be protective.

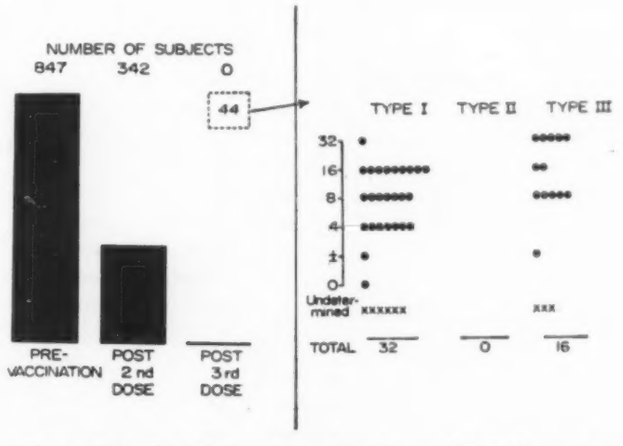

Fig. 9.—*Left*, effect of three doses of vaccine on 847 children with no antibody for all three types at level of 1:64. *Right*, antibody levels determined on samples of venous blood after three doses of vaccine in 44 subjects who have negative finger blood test for antibody at level of 1:64.

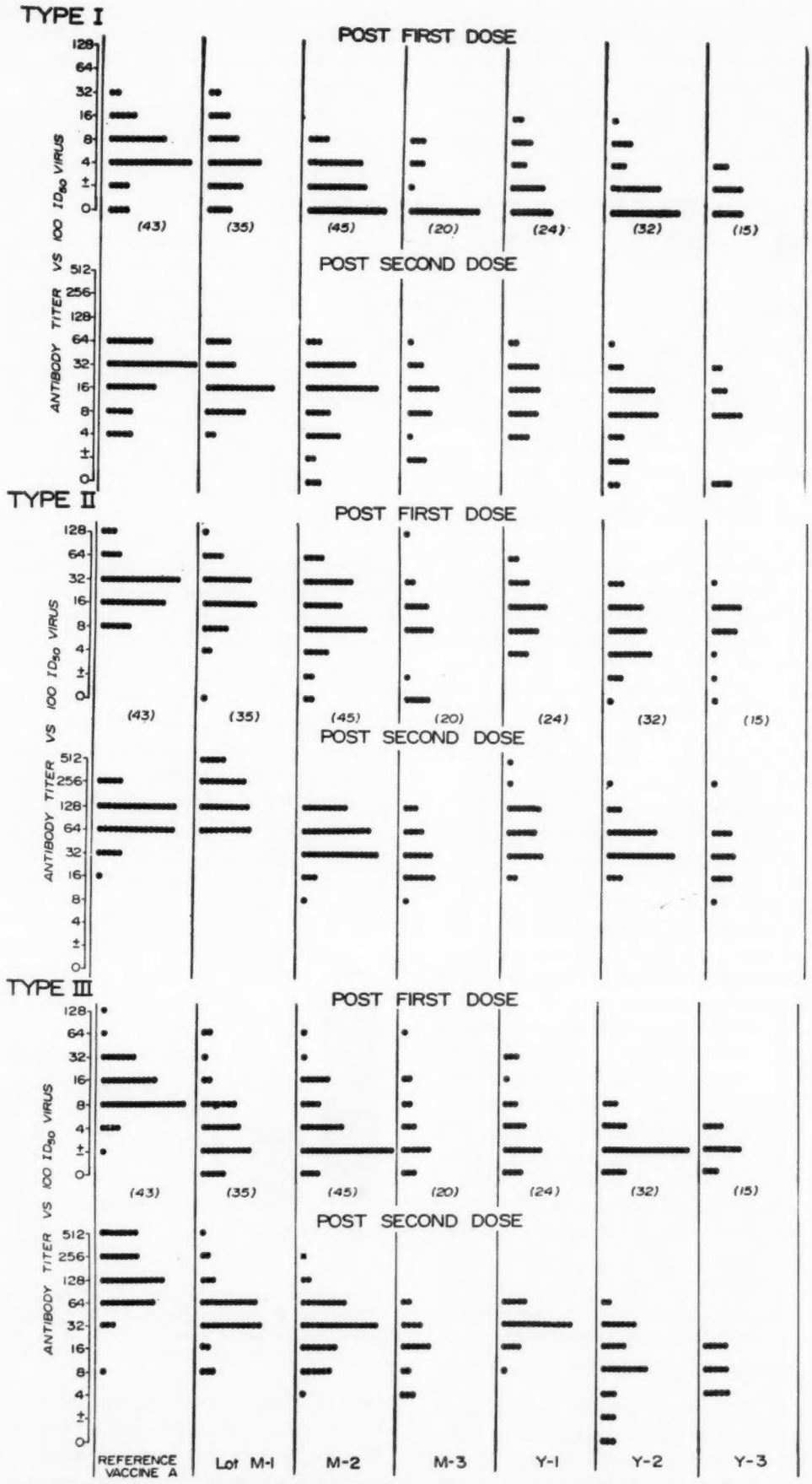

Fig. 10.—Antibody response (types 1, 2, and 3) to different lots of vaccine after first and second doses given four weeks apart in children without prevaccination antibody to any type.

Comment

The objective of these studies was to clarify our understanding sufficiently to permit the establishment of a set of conditions that would, under practical circumstances, produce an effect with a wide margin between the lowest individual response induced and the minimal response that might be required for immunity. In this way it was hoped to approach the irreducible minimum for the number of individuals who fail to respond with a significant degree of immunity.

From these studies it appears that the level of antibody induced, and its degree of persistence, at demonstrable levels, is a function primarily of mass of virus antigen injected, of the number of doses into which this is divided, and of the spacing between doses. The question then arises as to what constitutes adequate antigenic mass and adequate numbers of inoculations. It has been observed, even in individuals who have had minimal antigenic stimulation, and in some intances with no elicitation of antibody response, that there has been induced, nevertheless, a state of hyperreactivity demonstrable by reinoculation after the lapse of a sufficient interval of time. However, from the practical viewpoint of inducing immunity, it would not be reasonable to rely upon the development of immunologic hyperreactivity without the creation, at the same time, of a measurable antibody response. Since the hyperreactivity that develops also seems to persist, if an antibody response was once elicited, it would be more reasonable to aim at inducing the formation of a sufficient level of antibody to be certain that a hyperreactive state has also been created. That a substantial degree of hyperreactivity has been developed may be measured by comparing the degree of antibody response induced after the "booster" with the response to a similar dose of vaccine given to a group of immunologically inexperienced persons. Such effects are demonstrated in figures 3 and 4, which show the distribution of antibody titers before and after a single dose of vaccine J in a group of previously vaccinated persons and in a group not previously treated. The lowest response in the previously sensitized group is equal to or greater than the highest response in the group not previously sensitized.

In the course of these studies, it has been noted not only that that intensity of primary sensitization influences the degree of antibody response but that the booster dose is no more effective than a first injection if the vaccine used in the primary series possessed little or no antigenic activity. This observation was reported earlier and its importance has been mentioned previously. The pertinent findings, shown in figure 12, which illustrate merely a primary response to a so-called booster dose, given 10 months after the primary series, serve as the basis for the recommendation that children who participated in the field trial and who received vaccine that, according to present standards, may have been less than optimal in potency, should receive three doses, as if they had not been vaccinated previously, and that this be administered with intervals suggested by the findings in these investigations. This was discussed in detail in the May 26, 1956, issue of THE JOURNAL.[16]

The questions that confront the physician who administers poliomyelitis virus vaccine are: "How certain am I of the beneficial effects that it is intended to produce? How long will the effect last? Do I have to administer reinoculations and, if so, when? What is the probability that each of my patients individually will escape paralytic poliomyelitis?" These are also questions that are asked by an enlightened public. If the immunologic factors that are operative are understood, patients will more readily cooperate with physicians in the practice of the prevention of this disease, even though this will become more difficult as the fear that is now imposed by the occurrence of epidemics is eliminated.

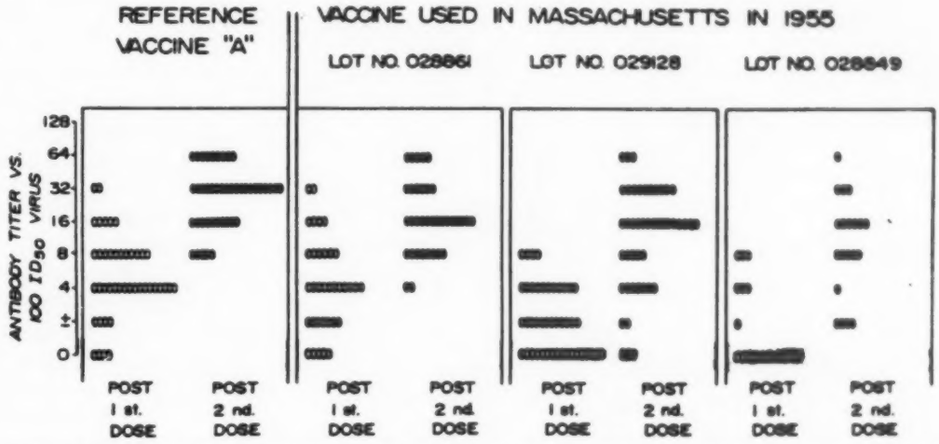

Fig. 11.—Type 1 antibody response after first and second doses of vaccine lots used in the spring of 1955 in Massachusetts.

The answers to the practical questions of consistency of degree of effectiveness and probable duration of immunity are best expressed in terms of the results of studies that were designed to reveal the factors, both quantitative and qualitative, that contribute to variation in individual and in group response. It is clear that the amount of virus antigen injected is the chief determinant of the intensity of the immune response; this is reflected either in level of antibody induced or in degree of immunologic hyperreactivity effected. It has been shown, also, that the amount of virus antigen required to induce a maximal immunologic effect is substantially less if multiple injections are administered and if adequate attention is given to the spacing between inoculations.

Although the efficiency of the effect of multiple injections is greater as the interval between inoculations is prolonged, at least to a certain point, this must be balanced against the desirability of reducing the interval during which the incompletely vaccinated individual is exposed to risk. For this reason, the two primary doses should be spaced not less than two weeks apart, and, during periods of potentially high

prevalence, two doses should be given within this short interval. In periods, or regions, of low prevalence, a preferable spacing would be four to six weeks, but may be longer. The third dose, in either case, should be given approximately seven months, or longer, after the second dose, and this interval can be prolonged as long as desired or convenient but should be administered prior to the ensuing seasonal prevalence. A third dose, given some seven months after the primary, not only enhances the level of antibody induced by the primary series but affords a third chance for primary sensitization in the event that the responsiveness of the individual, and the relative potency of the vaccine employed, was such as to have failed to result in a primary response to the first or second doses given earlier.

Thus the schedule of inoculation recommended represents a reasonable compromise, within practical limits, that permits the utilization of the benefits to be derived from repeated inoculation. Moreover, the suggested schedule is intended to provide at least three

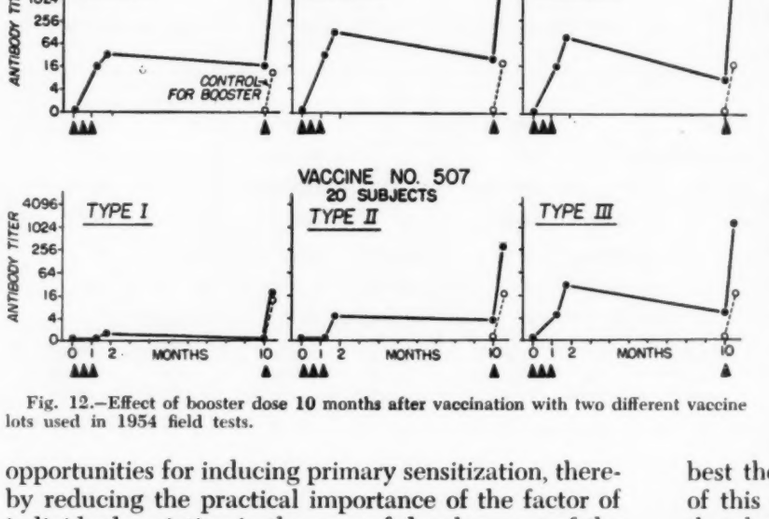

Fig. 12.—Effect of booster dose 10 months after vaccination with two different vaccine lots used in 1954 field tests.

opportunities for inducing primary sensitization, thereby reducing the practical importance of the factor of individual variation in the ease of development of the immune state. Although a wide latitude exists in the intervals over which inoculations may be spaced, in the route for inoculation and in dosage for an effective response, the factors of critical importance are antigenic mass and adequate spacing of inoculations. In respect to the use of small inoculums intradermally, the evidence is clear that this does not result in effects equal to those achieved with larger doses that can be given by percutaneous routes.

From the evidence at hand, the potency of the vaccine, for each type, could be selected in terms of the effects induced by the different dilutions of reference vaccine A. When vaccines of greater than minimal potency are employed, it should be expected that routine immunization will induce a substantial immunologic effect with a high degree of reliability—even after one dose—and this assurance is increased by a second dose. After the third dose, suitably spaced, the effect should, for practical purposes, be complete. Tests for adequacy of immunizing effect will be continued for the next few years to verify the extent to which this does in fact occur with vaccines of the potencies now available.

The objective of such continued observation is the achievement of a routine of such a degree of consistency that there is built into the immunization procedure a wide "margin of confidence" for effectiveness. Since tests for antigenic potency can be readily made, both in laboratory animals and in children, and since the ultimate requirements for full immunizing effect seem not unrealistic of achievement, it would appear that it is merely a matter of fulfilling these requirements that constitutes the problem that stands between the present and the ultimate elimination of paralytic poliomyelitis. That this can be done, insofar as immunologic measurements can be so interpreted, is suggested by results of tests on children who have received a full course of immunization, with commercially produced vaccine as well as with vaccine produced experimentally.

Although the principal effect of vaccination is to create an immunologic barrier to invasion of the central nervous system, an accessory effect may be the reduction in the degree and duration of virus multiplication at the superficial site of infection. In addition, the establishment of secondary foci of multiplication or excretion might conceivably be prevented, thereby reducing the amount and duration of virus elimination.[13] If hyperimmunization, as tends to occur after secondary stimulation (booster) in those previously vaccinated or previously infected, is influential in creating a state of resistance to infection as well as to the already existent state of resistance to paralysis, then it can be expected that the reservoir of infection will be further reduced.

The concept [17] that some previously infected individuals may be silent reservoirs, serving as intermittent sources of infection, seems to fit best the facts concerning the epidemiologic behavior of this disease. If this be true, then it is conceivable that hyperimmunization, which, if sufficiently great, will limit or prevent the establishment of infection, will also limit or reduce the reservoir of infection by reducing the number, frequency, and duration of carriers in the population. Thus, it could be that vaccination, as it tends to do in other diseases, may bring about a sharper reduction in the amount of paralytic poliomyelitis than is to be expected merely on the basis of the number of individuals vaccinated. That this may well occur is indicated by the reduction, in the summer of 1955, not only in the number of cases of paralytic poliomyelitis but in the number of cases of nonparalytic poliomyelitis in vaccinated as compared with nonvaccinated children, even in those given but one dose of vaccine.[12]

If the mechanism of immunity that has been described is correct, then it is to be expected that the protective effect against paralytic poliomyelitis will be essentially the same during the season immediately following inoculation and during subsequent seasons. This view is based on the indications that, in spite of

a tendency for antibody levels to decline, the hyperreactive state appears to persist, and it seems that, through the hyperreactive state, immunity to paralysis may also be mediated. The indications that this mechanism has been operative in vaccinated persons are suggested by the meager evidence that is available that the ratio of cases between vaccinated and controls was essentially unchanged as the 1954 or 1955 seasons progressed, although the tendency for antibody to decline continued during the period in question. Moreover, there has not been any obvious evidence during the summer of 1955 of a reduction in the ratio of effectiveness in those vaccinated in 1954 but not revaccinated in 1955.

Changing epidemiologic patterns will make it difficult to acquire quantitative information on degree of persistence of immunity. Therefore, as a guide to decisions in practice, it is essential to establish and to understand the dynamics both of infection and of immunity in the individual and in the community. The validity of the concepts that have been expressed, of the mechanism of immunity, and of the significance of these concepts will be revealed in time.

Summary

The amount of virus antigen injected is the principal determinant of the intensity of the immune response. This is reflected in the level of antibody induced and/or in the degree of immunologic hyperreactivity effected. Although antibody, at demonstrable levels, tends to persist for long periods, it has also been observed that immunologic hyperreactivity continues, even in those cases in which antibody has declined to nonmeasurable levels. The indications are that immunity to paralysis is mediated not only through existing antibody in the circulating blood but through the mechanism of immunologic hyperreactivity that calls forth antibody sufficiently rapidly, after exposure, to intercept invasion of the central nervous system even though pharyngeal or intestinal infection may have occurred.

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CLINICAL NOTES

REPORT OF TWO CASES OF CARDIAC TAMPONADE IN UREMIC PERICARDITIS

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Pericarditis is a frequent complication of uremia in both acute and chronic renal failure.[1] The recognition of uremic pericarditis has been important for three reasons: 1. The onset of pericarditis in uremia has been found to have prognostic significance.[2] 2. Pericarditis is frequently the cause of confusing and distressing pain.[3] 3. Electrocardiographic abnormalities occurring late in uremia are often the result of pericarditis.[4]

Two cases of chronic renal failure, which were seen recently in this hospital, have served to illustrate another significant aspect of uremic pericarditis. In both instances the immediate cause of death was cardiac tamponade, which was a complication of uremic pericarditis. Because of the lack of appreciation of tamponade as a complication of uremic pericarditis in textbooks and the literature, it was thought that a report of these cases would be of interest.

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Report of Cases

Case 1.—A 29-year-old man entered the Salt Lake Veterans Administration Hospital for the second time on Feb. 20, 1953, with weakness and anorexia of one month's duration and the complaint of pain of 10 days' duration in the left shoulder and back.

Chronic glomerulonephritis had been diagnosed nine years prior to the patient's final admission. The course of the disease had been rather uneventful except for a brief phase four years before the final admission when the nephrotic syndrome developed. One month before admission, the patient contracted an upper respiratory infection, with cough, fever, sore throat, generalized muscular aches and pains, and insomnia. He became progressively ill, with weakness, orthopnea, exertional dyspnea, anorexia, and nausea. Ten days prior to admission, he developed a severe, sharp pain in the back between the shoulder blades and in the left anterior part of the chest and left shoulder. The pain was worse when the patient reclined and was partially relieved by his sitting up and leaning forward. During the week prior to admission, the pain subsided somewhat but did not disappear entirely. On admission, his blood urea nitrogen level was 98 mg. per 100 ml., the creatinine level 14.6 mg. per 100 ml., carbon dioxide–combining power 15 mM. per liter, and total protein level 6.2 gm. per 100 ml., of which 2.5 gm. was albumin.

Physical examination revealed a blood pressure of 145/105 mm. Hg, pulse 96, and respirations 24. The patient was a pale, thin male who appeared chronically ill and extremely weak. There was grade 4 hypertensive retinopathy. There was dulness, and breath sounds were decreased over the bases of both lungs, but no rales were heard. The heart was moderately enlarged; on auscultation, the rhythm was regular and no murmurs were heard. There was a high-pitched, scratchy pericardial friction rub, loudest at the left sternal border. A paradoxical pulse was detected; on inspiration, systolic pressure decreased 20 mm. Hg. The neck veins were dilated, and the liver was palpable 3 cm. below the right costal margin. The electrocardiogram revealed a prolonged Q-T interval, inverted T waves over the left ventricle, and left-axis deviation. Circulation time was 37 seconds with dehydrocholic acid (Decholin); venous pressure was 265 mm. of H_2O. The patient was treated with bed rest and low-salt diet. Because of poor oral intake, fluids were given intravenously. The volume of packed red blood cells was 25 ml. per 100 ml., and the patient was given 250 ml. of packed red blood cells. On the following day there was marked edema of the legs and feet, while the lungs remained clear. A picture of progressive failure of the right side of the heart developed, with marked venous distention, edema of the feet and face, and eventually generalized anasarca. X-ray examination of the chest at this time revealed a large globular heart with normal pulmonary vasculature. Auricular fibrillation developed, and there was some slowing of the pulse after digitalization. However, the patient's condition became worse, with increasing edema and a progressive drop in blood pressure and pulse pressure. He died on the eighth hospital day in circulatory collapse.

Postmortem examination revealed small, contracted kidneys, weighing 95 and 110 gm., and a microscopic picture typical of chronic glomerulonephritis. The pericardial sac was seen to be greatly distended and tense upon opening the thoracic cavity. The sac had a dark purple color, and its transverse diameter was 18 cm., with a transthoracic diameter of 26 cm. Incision of the sac revealed dark red fluid, which measured 800 ml. in volume and had a hemoglobin concentration of 3.6 gm. per 100 ml. Bridging the pericardial space between the visceral pericardium and the parietal pericardium were many easily broken, broad, dark red and brown fibrinous adhesions. The entire epicardial and pericardial surfaces of the pericardial sac were covered with fibrin. The heart was enlarged to 550 gm., with hypertrophy of the left ventricle. On microscopic examination the surface of the epicardium was found to be covered with a fibrinous exudate undergoing organization. Many newly formed, blood-filled vessels were seen extending to the surface and into the bridging fibrin adhesions. There was no evidence of bacterial invasion of the pericardial sac. The rest of the postmortem examination was consistent with long-standing renal disease with hypertension and terminal uremia.

Case 2.—A 30-year-old male entered the Veterans Administration Hospital for the sixth time on May 13, 1955. The chief complaint was shortness of breath, increasing over a two-week period. Chronic bilateral atrophic pyelonephritis was first diagnosed in 1947, at which time a pyeloplasty was performed. The patient had been admitted repeatedly to this hospital with recurrent bouts of urinary tract infection, usually due to Escherichia coli. He had done well until three weeks prior to admission, when he developed severe shortness of breath on exertion. He was hospitalized elsewhere and treated with sulfonamides. Because of signs of cardiac failure, the patient was digitalized. About one week prior to admission, he developed a sharp pain in the epigastrium, which was made worse by breathing. He developed orthopnea and swelling of the ankles. For the two days prior to admission, the patient was unable to breathe unless he sat up in bed. He had constant anterior chest and epigastric pain on deep inspiration and on lying flat. The urine output decreased markedly over the three days before admission. Just prior to admission, the patient complained of burning, urgency, and frequency, and passed small amounts of purulent urine.

Physical examination showed the patient had a blood pressure level of 190/110 mm. Hg, a regular pulse rate of 90, respirations 32, and temperature 99.4 F (37.4 C). He was acutely ill, dyspneic, and pasty in appearance and seemed to be mentally obtunded. There was puffiness about the face and eyes and pitting edema of the ankles and lower legs. There was grade 4 hypertensive retinopathy. The lungs were clear, with no rales or dulness. The heart exhibited enlargement to the left, a harsh pericardial friction rub over the entire precordium, a grade 3 systolic murmur along the left sternal border, and a gallop rhythm. The liver was enlarged to 3 fingerbreadths below the right costal margin and was tender. There was bilateral tenderness of the costovertebral angle. The rest of the physical examination was not remarkable.

Laboratory examinations revealed the volume of packed erythrocytes to be 21 ml. per 100 ml. and the total leukocytes 14,600 per cubic millimeter, with 85% polymorphonuclear cells. The smear was normochromic and normocytic, and platelets were adequate. The urine was cloudy, with a pH of 5.0, specific gravity of 1.007 to 1.010, and 3 to 4+ albuminuria. The sediment contained 10 to 20 red blood cells and 100 white blood cells per high-power field and granular and white blood cell casts. On admission, the patient's blood urea nitrogen level was 120 mg. per 100 ml., the carbon dioxide–combining power 3 mM. per liter, and the chloride level was 115 mEq., sodium level 137 mEq., and potassium level 3.7 mEq. per liter. Urine cultures were positive for Esch. coli. An electrocardiogram revealed S-T elevation, compatible with pericarditis. A chest film revealed a large globular heart with normal pulmonary vasculature.

The patient was treated with sodium lactate intravenously, antibiotics, and digitalization. His course was moderately stable for the first six days, but, at that time, he became oliguric and began to gain weight rapidly. The heart sounds became distant, his pulse pressure fell, his liver enlarged markedly, and he developed anasarca. During this time he found it necessary to sit up and lean forward in order to breathe more easily. He complained of pain in the left anterior part of the chest and left shoulder. On the ninth hospital day, the systolic blood pressure fell, and the patient died.

At postmortem examination the kidneys were found to be shrunken and scarred, weighing 65 and 45 gm. The microscopic picture was that of an end-stage kidney with marked inflammatory change and loss of functioning nephrons. The glomerular changes were not suggestive of glomerulonephritis. A diagnosis of chronic pyelonephritis was made. When the thorax was opened, the pericardial sac was seen to be distended and dark red in color. It contained 850 ml. of markedly bloody fluid, which clotted immediately. The entire heart and pericardial sac were covered by friable, thick, brown fibrinous adhesions, many of which bled freely on being torn. On histological examination, proliferating fibroblasts and capillaries were seen penetrating the fibrinous adhesions that filled the pericardial sac. There was no evidence of bacterial inflammation, the exudate being entirely mononuclear. The rest of the examination was compatible with terminal uremia.

Comment

Uremic pericarditis is classically described as a fibrinous pericarditis with only small amounts of pericardial fluid.[5] When the pericarditides are separated into those with and without effusion, uremic pericardi-

tis is always placed in the latter category. Uremic pericarditis is never included in the differential diagnosis of cardiac tamponade. However, in autopsied series of patients dying of uremia with pericarditis, the proportion of those with pericardial effusions of 150 ml. or greater has been from 20 to 50%. In several cases very large effusions were present.[6] The effusion is often bloody but most commonly serous. The largest effusion reported, measuring 2,000 ml. of grossly bloody fluid, is from Barach's series.[2] In another case in his series, there was 700 ml. of pericardial fluid, and, in a case from Richter's series,[3] there was 700 ml. of pericardial fluid. In the two cases reported here, the effusion measured 800 and 850 ml. respectively. In both cases the fluid was grossly hemorrhagic. Thus, although it is true that most patients with uremic pericarditis do not develop significant pericardial effusion, in a rather large number of cases reported in the literature, effusions of considerable magnitude were found.

In many of the cases described in the literature, there were extensive adhesions between the visceral and parietal pericardium. These have been found in all stages of development, from the usual fibrin strand to dense fibrotic union of the two layers of the pericardium. In the cases under discussion, it is felt that the vascularizing fibrin and connective tissue adhesions bridging the pericardial space played an important role in the pathogenesis of the hemorrhagic effusion responsible for tamponade. The presence of friable vascular channels subjected to the shearing action of cardiac contraction, coupled with an increased bleeding tendency of the small vessels in uremia,[7] offers an adequate reason for the development of progressive hemorrhagic effusion. As in other pericardial effusions, the presence or absence of cardiac tamponade probably depends upon the rate of accumulation of fluid within the pericardial sac.

In the patient with an effusion of 2,000 ml. reported on by Barach, the tap was performed during life. The amount of fluid removed and the presence or absence of tamponade were not reported. The possibility of cardiac tamponade complicating uremic pericarditis has not been emphasized. It seems reasonable to assume, however, that there have been cases in the past and that this complication, if looked for, will be found to occur in a certain small percentage of cases. The difficulty of recognizing cardiac tamponade has been well presented by Williams,[8] who pointed out that the classic signs are often overlooked or absent and that a high index of suspicion is necessary to make the diagnosis early. He pointed out that dilated, pulsating neck veins were particularly significant and that a pulsus paradoxicus could be readily detected with a sphygmomanometer. The finding of a large globular heart with little or no engorgement of the pulmonary vasculature on x-ray should also arouse suspicion. The importance of recognizing cardiac tamponade in a patient in the terminal stage of chronic renal failure is largely academic. However, since the pericarditis of uremia accompanying acute renal failure is pathologically identical with that of chronic renal failure,[1] it is conceivable that this complication may arise in a potentially reversible condition and that its prompt recognition and treatment may be lifesaving. For this reason the present report is made to point out that cardiac tamponade may occur in uremic pericarditis and that the classic view of uremic pericarditis as being a dry pericarditis is not borne out by the literature.

Summary

Uremic pericarditis with pericardial effusion is not so rare as is indicated in the textbooks. It may result in cardiac tamponade as a terminal event in the course of uremic pericarditis.

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Transfusion of Infected Blood.—The bactericidal property of fresh blood . . . rapidly diminishes with refrigeration and storage, and stored blood becomes a good culture medium. It may even be to advantage to avoid refrigeration of freshly drawn blood for a few hours after collection and so enable it to overcome possible stray contaminants. Contamination may occur in many ways. . . . Any infection, however introduced, is likely in stored blood to result in a heavy bacterial growth if the blood is allowed to remain at room temperature for a few hours. Relating to this, the practice of having several bottles of blood, which have been direct matched for a particular patient, standing by in the theatre during an operation until they are required, is to be condemned. Blood in reserve should be kept in the refrigerator until just before use. The transfusion of even a small volume of grossly infected blood can produce a condition akin to severe protein shock, with circulatory failure and rapid death. Such blood, dependent on the type of organism present, may or may not show to naked-eye inspection hemolysis or a pigment change, either of which should raise suspicion. There may also be a faint smell of hydrogen sulphide on opening the bottle. Atypical coliform bacilli capable of multiplying at refrigerator temperature have proved to be the most significant organisms. When present in large numbers an infecting organism may be demonstrable in a direct smear made from the residual blood in the bottle or from the heart's blood of the patient post-mortem. Having in mind the risks to sterility to which stored blood may be exposed, it is gratifying that fatalities from this hazard are so few, but it is possible that minor degrees of bacterial contamination are responsible for some febrile reactions.—H. F. Brewer, M.D., The Hazards of Blood Transfusion, *The Postgraduate Medical Journal*, June, 1956.

BUREAU OF MEDICAL ECONOMIC RESEARCH

PHYSICIAN MORTALITY, 1949-1951

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The deaths of 10,738 physicians, 1949 to 1951, relative to a 1950 physician population of 204,450 comprise the basic statistics of this study of physician mortality. Through a detailed examination of these data by age and by cause of death, the highlights of physician mortality experience for the period cited are presented and compared with the mortality experience of white males of the same ages. The presentation of these findings will follow a brief description of the nature of the data and the methods employed in their compilation and development. A more detailed description of the data and methods, along with supplementary tables and the present article, will be presented in Bulletin 103, available from the Bureau of Medical Economic Research, American Medical Association.

Basic Data

The population of 10,738 physician deaths was censused through the use of A. M. A. files and through the procurement of death certificates from state and city departments of health. Without the cooperation of the vital statisticians in these departments, this study would have been impossible. All the deaths were verified by both sources of information except 175 for which death certificates could not be obtained, although these deaths were confirmed by other sources in addition to A. M. A. records. The three-year period during which these deaths occurred was selected for intensive study because it is the most recent for which the National Office of Vital Statistics has tabulated population mortality data for white males, white females, nonwhite males, and nonwhite females.[1]

To be evaluated in terms of mortality experience, the deceased population must be related to its corresponding living population, which is customarily censused on the mid-date of the period under examination. We chose April 1, 1950, for our census of physicians living in the continental United States in order to match the date employed by the National Office of Vital Statistics in computing its life tables. As the result of information received on the death certificates as well as knowledge gained through other checks on the living physician population, a final revised estimate of 204,450 was obtained. In Bureau Bulletin 94, "Distribution of Physicians by Medical Service Areas" (1954), the total was 204,995 for the same date. Both sets of data were derived from the files of the Directory Department, in which almost all the names are those of graduates of approved American and Canadian schools or graduates of other medical schools who were or had been licensed to practice medicine in at least one of the 48 states or the District of Columbia. These refinements of the basic data involving a net reduction of 545 in the living population have, in our opinion, greatly enhanced their quality.

Unfortunately our data on living physicians have two defects. Thus far we have not been able to census the populations of living specialists and so have not examined physician mortality by specialty. We realize, nevertheless, that we are omitting an aspect of physician mortality in which physicians are interested. The second defect is that A. M. A. data do not identify all physicians by sex. Our attempt to determine sex by examining the physician's first name not only resulted in a suspiciously high count of female physicians (10,000) but was proved to be defective; for example, some physicians classified as females by their first names obtained their premedical education in colleges that have never enrolled a female. We were unable, therefore, to determine the population of living female physicians, although we knew the number who died during the three years was 433. It also was not possible to identify physicians by race, although the living nonwhite physicians are known to number between 4,000 and 5,000; very few are females. If the poorer mortality experience of nonwhite males in comparison with white males generally applies also to nonwhite physicians, our inclusion of nonwhite physicians should serve to offset, somewhat at least, the inclusion of females. The extent, however, to which these two compensating factors balance is unknown to us and is recognized as a basic defect in the data. Since 92% of the physicians were white males, white male mortality is used as the basis of comparison in this study.

Valid comparisons between physician and white male mortality experience can be made only when the white male population is adjusted to the age distribution of the physician population. The physician population, unlike the white male population, includes no children. Hence the number dying per thousand could not be used for mortality or cause-of-death comparisons. So 204,450 white males of the same age distribution as the 204,450 physicians is the frame of reference used in this study. Comparisons between these two groups reveal differences in mortality rates only. The procedure commonly employed to make the adjustment is to apply white male death rates by age and by cause to the physician population and to designate the deaths so computed as "expected" deaths, the number that would have occurred among physicians if their mortality experience had been identical to that of white males. Hereafter in this study, unless otherwise indicated, references to white male deaths will be references to these "expected" deaths of a white male population of the same age distribution as the living physician population.

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Age-Specific Mortality

The analysis of physician mortality experience by age includes death rates by five-year age groups, expectation of life at certain ages, and average ages at death for both physicians and white males. Since mortality rates for all causes by single years of age are available in the life tables for white males, our computations of expected deaths were made for each age, 20 and over. They are tabulated by five-year age groups in table 1 for the sake of parallel presentation with the data on deaths by individual causes to be discussed later. The numbers of deaths among white males by individual causes are available only for five-year age groups.

The Bureau's deck of punch cards was used to determine the ages of the living population. These punch cards, developed over a number of years, show only the year of birth, as does the American Medical Directory. Although information on day and month of birth could be found for many physicians in the files of our Directory Department, it was not practical for the purpose of this study alone to use other than the year of birth. The month and day as well as the year of birth were, of course, reported on the death certificates. We assumed that the births of the living population were evenly distributed throughout the calendar year of birth. In order to determine the attained age as of April 1, 1950, a quarter-year adjustment was necessary and accounts for the quarters (demicals) in the age distribution of the living population by five-year age groups in column (2) of table 1. The age of the dying was the age at the last birthday, and no comparable adjustment of a quarter of a year was required.

The physician deaths during the three years 1949-1951 are shown by age groups in column (3) of table 1. The physician death rates in column (5), however, present the number of deaths per thousand in the age groups during a single year. For example, in the age group 20-24, there were 2,719.75 living physicians as of April 1, 1950, and 12 died during the three-year period 1949-1951. Adjusting the deaths to the number for a single year, instead of the number for three years, the mortality rate (number dying per thousand per year) for this age group was 1.47. For the age group 25-29 the living population on the census date numbered 22,689.50; 75 died during the three-year period under examination, making the death rate for one year 1.10.

Actual Versus Expected Deaths

Whether these physician mortality rates are high or low can best be ascertained by comparing them with the experience for white males. If the 2,719.75 physicians in the age group 20-24 had been subjected to white male mortality experience in 1949-1951, 14.2 deaths [column (4), table 1] could have been expected. The resulting mortality rate then in this age group was 1.74 [column (6)], and the percentage of actual physician deaths to expected was 84.5. In contrast to the experience of white males in terms of the deaths they would have experienced at these ages, physician mortality was 15.5% lower. The expected deaths and the percentage of actual to expected deaths [column (7)] for the five-year age groups are presented in table 1.

TABLE 1.—*Physician Population as of April, 1950, Deaths and Death Rates, 1949-1951, of Physicians and White Males of the Same Ages, and Percentage of Actual to Expected Deaths*

Age Group (1)	Physician Population, 4/1/50 (2)	Physician Deaths, 1949-1951 (3)	Expected Deaths of White Males, 1949-1951 (4)	Physician Death Rates (5)	White Male Death Rates (6)	Percentage of Actual to Expected Deaths (7)
20-24	2,719.75	12	14.2	1.47	1.74	84.5
25-29	22,689.50	75	116.7	1.10	1.71	64.3
30-34	25,155.75	120	154.2	1.59	2.04	77.8
35-39	27,790.00	165	248.3	1.98	2.98	66.5
40-44	26,706.25	328	383.6	4.09	4.79	85.5
45-49	20,906.25	448	484.9	7.14	7.73	92.4
50-54	17,364.00	599	636.2	11.50	12.21	94.2
55-59	14,372.25	751	819.7	17.42	19.01	91.6
60-64	13,039.00	1,130	1,099.8	28.89	28.12	102.7
65-69	11,742.50	1,458	1,441.1	41.39	40.91	101.2
70-74	10,210.25	1,834	1,857.2	59.87	60.63	98.8
75-79	6,808.75	1,680	1,852.1	82.25	90.67	90.7
80-84	3,447.00	1,268	1,381.5	122.62	133.59	91.8
85-89	1,120.25	580	679.0	172.58	202.04	85.4
90-94	320.00	240	274.9	250.00	286.35	87.3
95-99	54.75	45	64.8	273.97	394.52	69.4
100 and over	3.75	5	5.6	444.44	497.78	89.3
Total	204,450.00	10,738	11,513.8	17.51	18.77	93.3

Whereas 10,738 physicians died during this three-year period, the number of expected deaths would have been 11,513.8. The percentage of actual to expected deaths, therefore, for the entire population was 93.3. The fact that physician deaths were 6.7% fewer than the number that white males of the same ages would have experienced indicates that physician mortality for these three years was definitely lower than that of all white males. (The percentage of actual to expected deaths was 94.7 for a hypothetical white population of 95% males and 5% females at each age, a very rough allowance for our inability to exclude females.) The ratio of actual to expected deaths was lowest for the age group 25-29 (64.3%) and highest for the age groups 60-64 (102.7%) and 65-69 (101.2%). As will be noted later in the discussion of causes of death, the excess mortality of physicians in these two age groups, 60-64 and 65-69, was probably a result of the excess number of physician deaths from diseases of the heart.

Other Comparisons

The complete life table for physicians, together with an account of its computation, will be presented in Bulletin 103; it records the expectation of life for physicians at various ages according to their 1949-

1951 mortality experience. At the start of their careers, physicians have approximately 45 years of life ahead of them. More specifically, the average number of years remaining for physicians according to their 1949-1951 experience was 45.9 at age 25, 44.9 at 26, 36.3 at 35, 23.3 at 50, and 13.0 at 65. The percentage of those alive at selected ages who will reach 70, according to this same experience, was 56.2 for those age 25, 56.8 for those 35, and 58.6 for those 50. Consistent, moreover, with our findings regarding the relationship of actual to expected deaths at various ages, the life table values show a higher expectation of life for physicians than white males at all ages (25 to 102). The smallest difference in life expectancies under age 85 between the two groups was only 0.1 year at age 60, while the greatest was 0.9 year at age 25.

The average ages at death differ little between the two groups. The median age at death for physicians was lower (70.8 versus 71.0 years) but the mean age at death for physicians was higher (68.6 versus 68.4 years). These differences, involving data by five-year age groups, were not statistically significant.

Mortality by Cause

For our analysis of physician deaths by cause, we classified the deaths into 11 groups of leading causes and a residual group, "all other causes." The cause of death categories are defined by using the grouping and code numbers in the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death, sixth revision, World Health Organization, 1948. In our study, causes of death were grouped as follows:

1. *Diseases of the Heart* (401, 402.1, 410-443). This group includes rheumatic fever with heart involvement, chorea with heart involvement, chronic rheumatic heart disease, arteriosclerotic and degenerative heart disease including diseases of the coronary arteries, hypertensive heart disease, and other diseases of the heart.

2. *Malignant Neoplasms* (140-205). This group includes all malignant neoplasms classified according to site as well as neoplasms of the lymphatic and hematopoietic tissues. It excludes benign and unspecified neoplasms.

3. *Vascular Lesions Affecting the Central Nervous System* (330-334). This group includes subarachnoid and cerebral hemorrhage, cerebral embolism and thrombosis, and other and ill-defined vascular lesions affecting the central nervous system. It excludes intracranial lesions due to trauma and any condition specified as a late effect, sequela, or death one year or more after onset.

4. *Accidents* (E800-E962). This group includes all transport accidents, accidental poisoning, falls, and other accidental deaths.

5. *Nephritis and Nephrosis* (590-594). This group includes acute, chronic, and unspecified nephritis, nephrosis, and other renal sclerosis.

6. *Influenza and Pneumonia* (480-483, 490-493).

7. *Tuberculosis* (001-019). This group includes all forms of tuberculosis.

8. *Diabetes Mellitus* (260).

9. *General Arteriosclerosis* (450). This group excludes arteriosclerosis with hypertension, and other diseases involving arteriosclerosis.

10. *Cirrhosis of Liver* (581). This group includes cirrhosis of liver with and without mention of alcohol or alcolohism.

11. *Suicide* (E963, E970-E979). This group includes deaths from nonaccidental self-inflicted injuries in suicide or attempted suicide, and excludes accidental self-inflicted injuries.

12. *All Other Deaths.* Our category of "all others" includes deaths from all causes not included in the above major groups.

The number of physician deaths by cause involves decimals as a result of the distribution among the 12 categories of the 175 deaths for which death certificates could not be obtained and for which cause of death was unknown. Only one-sixth of the 10,563 death certificates indicated that autopsies had been performed. We are unable to measure the influence, if any, on our data of better certification of physician deaths. The total number of physician deaths for each leading cause is shown in column (2) of table 2. In order to compare them with the total number of white male deaths, we developed white male death rates by five-year age groups for 1949-1951 from data published by the National Office of Vital Statistics.[2] The procedures employed are described in Bulletin 103. Despite our efforts to match the data used by the National Office of Vital Statistics in computing the life tables, a small discrepancy appears between the total number of expected deaths for all ages by individual causes and the total number of expected deaths for all causes computed for each year of age. The difference is only 16, or 0.1%; this difference would increase the percentage of actual to expected deaths from 93.3 to 93.4. It can be attributed to the smoothing of raw data involved in computing the life tables.

As discovered in earlier studies, we found that by far the largest number of deaths among physicians (and among the general population) were due to diseases of the heart, which accounted for 5,265.6 physician deaths, or 49.0% of the total, and 5,103.3, or 44.4%, of the expected deaths among white males of the same ages. Malignant neoplasms (1,503.9 deaths or 14.3%), vascular lesions affecting the central nervous system (1,201.7 deaths or 11.2%), and accidents (488.6 deaths or 4.6%) ranked second, third, and fourth in the number of deaths for physicians; these three causes also ranked second, third, and fourth for white males. The four leading causes together accounted for 79.0% of physician deaths compared to 75.3% of white male deaths. Each of the remaining causes accounted for only 1.1 to 2.6% of the total deaths. The cardiovascular-renal diseases (groups 1, 3, 5, and 9) accounted for 63.4 and 59.6% of physician and white male deaths respectively. These data and those for the other causes of death are presented in table 2.

Ratio of Actual to Expected Deaths by Cause

The ratio of actual to expected deaths by cause provides a comparison of physician and white male experience that, as in the case of mortality rates above, renders these data more meaningful. These comparisons are shown in table 2. For only three causes—diseases of the heart, diabetes mellitus, and suicide—was there a greater number of deaths than would have

been expected in a white male population of the same ages; the percentages of actual to expected deaths were 103.2, 135.1, and 102.8. For each of the eight other causes, mortality experience among physicians in 1949-1951 was more favorable than among white males. In terms of the percentage of actual to expected deaths, physician mortality experience compared most favorably for tuberculosis (119.1 physician deaths), 46.6%, and influenza and pneumonia (160.7 physician deaths), 53.8%. In contrast, the least favorable experience appears to be that for diabetes mellitus (202 physician deaths), with 135.1% of expected deaths.

The difference between the number of physician deaths and the expected number was substantial for a few of the causes. How great a difference is required in order to justify the assertion that mortality among physicians from the named cause of death was significantly different from the mortality among white males? In applying the tests of significance to the differences, we recognize that there is room for more than one opinion. The standard deviation, in percentage, of the ratio of actual to expected deaths from each cause, in percentage, is set forth in column (5) of table 2. Consider the difference for diseases of the heart. Was the 3.2% excess of physician deaths great enough in relation to the standard deviation, 1.4% (1.42), to conclude that mortality from diseases of the heart among physicians was significantly higher than among white males and could not reasonably be attributed to mere chance? The difference is more than twice the standard deviation and almost 2.32 standard deviations, the required difference for 99 chances out of 100—single tail of the normal curve. The difference is also more than 1.64 standard deviations, the required difference for 95 chances out of 100. Those who believe that the difference must be at least 2.32 standard deviations will conclude that the difference in mortality from diseases of the heart among physicians and white males was ~~not quite~~ statistically significant. Those who consider 95 chances out of 100 a sufficient confidence level will contend that the difference in mortality from diseases of the heart among physicians and white males was clearly statistically significant. We conclude that, on balance, physician mortality from diseases of the heart was significantly higher than among white males.

For the other causes of death a choice between 95 chances out of 100 and 99 chances out of 100 is not required. According to the test of 95 chances out of 100—and, of course, 99 out of 100—the differences in mortality among physicians and white males was not significant for vascular lesions affecting the central nervous system, suicide, and cirrhosis of the liver. We conclude, therefore, that the differences noted in the number of deaths and in the ratio of actual to expected deaths among physicians and among white males from these three causes were too small to exclude the possibility that they resulted from mere chance. On the other hand, the differences in mortality between physicians and white males were significant for malignant neoplasms, accidents, general arteriosclerosis, diabetes mellitus, influenza and pneumonia, nephritis and nephrosis, and tuberculosis by the test of 99 chances out of 100. Most important of all, the difference of 6.6 percentage points (100% minus 93.4%) between the mortality of physicians and white males from all causes combined was definitely statistically significant by the test of 99 chances out of 100.

TABLE 2.—*Number and Percentage of Physician and of White Male Deaths, and Ratio of Actual to Expected Deaths, By Cause, 1949-1951*

Cause of Death	Physician Deaths		Expected Deaths of White Males		Percentage of Actual to Expected Deaths	Standard Deviation,* %
	No.	%	No.	%		
(1)	(2)	(2a)	(3)	(3a)	(4)	(5)
1. Diseases of the heart	5,265.6	49.04	5,103.3	44.39	103.2	1.4
2. Malignant neoplasms	1,530.9	14.26	1,649.4	14.35	92.8	2.4
3. Vascular lesions of the central nervous system	1,201.7	11.19	1,247.6	10.85	96.3	2.8
4. Accidents	488.6	4.55	660.6	5.75	74.0	3.3
5. General arteriosclerosis	207.8	1.93	298.4	2.59	69.6	4.8
6. Diabetes mellitus	202.0	1.88	149.5	1.30	135.1	9.5
7. Suicide	190.8	1.78	185.6	1.61	102.8	7.4
8. Influenza and pneumonia	160.7	1.50	298.8	2.60	53.8	4.2
9. Nephritis and nephrosis	131.3	1.22	199.7	1.74	65.7	5.7
10. Cirrhosis of the liver	120.2	1.12	137.2	1.19	87.6	8.0
11. Tuberculosis, all forms	119.1	1.11	255.8	2.22	46.6	4.3
12. All other causes	1,119.3	10.42	1,311.8	11.41	85.3	2.6
Total	10,738.0	100.00	11,497.7	100.00	93.4	0.9

* The standard deviation is the percentage of actual to expected deaths, as shown in column (4), divided by the square root of the actual number of deaths among physicians as shown in column (2). This formula was suggested by Edward A. Lew, Statistician, Metropolitan Life Insurance Company. See also page 11, Impairment Study, 1951, Society of Actuaries, Chicago.

Although diabetes mellitus was a cause for which there were proportionately more physician than expected deaths, it accounted for only 202, or 1.9%, of all physician deaths; the number of expected deaths was only 149.5. The excess, 52.5, was concentrated at the older ages; at ages 60 and over the excess was 54.5, but below age 60 the expected deaths were 2 more than the actual. This fact suggests, but does not prove, greater success by physicians as compared with white males in postponing death from diabetes. Unfortunately, the case rate incidence by age groups for the two populations is not known. The unfavorable experience of physicians from diseases of the heart likewise was concentrated among certain age groups; virtually all the excess deaths, 162.3, occurred at ages 40-74, with approximately 65% of them at ages 60-74.

Other Measures for Evaluating Leading Causes

Further evaluation of the relative importance of the leading causes of death can be made by the use of two additional measures. Rank by numbers of deaths has been employed up to this point in the examination of the ratio of actual to expected deaths. The other two measures are number of life years lost and num-

ber of working years lost due to the several causes respectively. In 1949-1951, 10,738 physician deaths, as shown in table 3, resulted in the loss of 132,439 years of life and 39,014 years of working life. Correspondingly, the 11,497.7 expected deaths among white males of the same ages resulted in the loss of 141,791 life years and 45,756 working life years. These measures were originally discussed in Bureau Bulletin 64,[3] and their computation for this study will be explained and presented in Bulletin 103.

Life years lost, as a measure of the force of death, impresses upon us forcefully what the loss of life involves. It takes into consideration the age at which the person died and the years he would have lived according to the expectation of life for a person at that age. Such a measure clearly gives added weight to the impact of deaths from those causes that strike the younger members of the population. Working years lost as a related measure attaches even greater weight to the youthfulness of the dying. Being more concerned with the economically productive years of life rather than the whole of life, it additionally minimizes the effect upon the nation's output of goods and services of those deaths from causes whose impact occurs chiefly after age 65. We assigned this age as the terminal point of a person's productive years, although the productive period ends before age 65 for some and after age 65 for others. Accordingly, working life expectancy at ages 65 or over is zero; the years "to be lived after age 65" are excluded in computing working life expectancy, the factor by which the number dying each year under age 65 is multiplied. Comparative data based on age 70, which some may consider a more realistic terminal age, will be presented in Bulletin 103. It should be realized that the higher we designate the terminal productive year, the closer working years lost approximates total life years lost. By designating 65 as this age, we reveal more forcefully which of the causes of death is least severe in inhibiting the potential for production.

In dealing with the physician population and white male experience adjusted to such a population, we must realize that we are considering an adult population. The differences between the ranking by numbers of deaths and those revealed by life years lost and working years lost among such a population would be even more pronounced among a population covering all of the years of life.[3] For convenience, the rankings of the top five leading causes according to the three measures are presented in table 3A, first for physicians and then for white males of the same ages. For physicians, diseases of the heart and malignant neoplasms ranked first and second by all three measures. Vascular lesions affecting the central nervous system ranked third by number and by life years lost, but only fifth by working years lost. Accidents ranked fourth, fourth, and third, whereas suicide ranked seventh, fifth, and fourth. For white males of the same ages, diseases of the heart rank first according to the three measures but accidents displaced malignant neoplasms in second position according to working years lost. Vascular lesions affecting the central nervous system ranked third, fourth, and sixth. Accidents ranked fourth, third, and second; and tuberculosis ranked seventh, fifth, and fourth.

Changes in rank as between numbers of deaths and life years lost reflect the added weight given by the latter measure to deaths at earlier ages; changes in rank as between life years lost and working years lost reflect the zero weight given by the latter to deaths at age 65 and over. Higher rank—rank one is highest—for a cause of death according to life years lost and even more so according to working years lost reveals that its incidence is relatively high at the younger

TABLE 3.—*Ranking of Eleven Groups of Leading Causes of Deaths, 1949-1951, of Physicians and of White Males of the Same Ages by Three Measures: Number of Deaths, Life Years Lost, and Working Years Lost*

Cause of Death	No. of Deaths			Life Years Lost			Working Years Lost		
(1)	No. (2)	% (3)	Rank (4)	Years (5)	% (6)	Rank (7)	Years (8)	% (9)	Rank (10)
A. Physicians									
1. Diseases of the heart	5,265.6	49.04	1	63,033.4	47.60	1	16,356.2	41.92	1
2. Malignant neoplasms	1,530.9	14.26	2	18,565.4	14.02	2	4,903.1	12.57	2
3. Vascular lesions of the central nervous system	1,201.7	11.19	3	11,770.0	8.89	3	1,965.2	5.04	5
4. Accidents	488.6	4.55	4	9,051.3	6.83	4	4,824.6	12.37	3
5. General arteriosclerosis	207.8	1.93	5	1,320.4	1.00	11	28.5	.07	11
6. Diabetes mellitus	202.0	1.88	6	2,212.4	1.67	6	451.6	1.16	9
7. Suicide	190.8	1.78	7	4,455.4	3.36	5	2,648.8	6.79	4
8. Influenza and pneumonia	160.7	1.50	8	1,575.1	1.19	10	385.9	.99	10
9. Nephritis and nephrosis	131.3	1.22	9	1,620.6	1.22	9	484.9	1.24	8
10. Cirrhosis of the liver	120.2	1.12	10	1,822.2	1.38	8	666.8	1.71	7
11. Tuberculosis, all forms	119.1	1.11	11	1,974.9	1.49	7	848.2	2.17	6
12. All other causes	1,119.3	10.42	...	15,037.6	11.35	...	5,449.9	13.97	...
Total	10,738.0	100.00		132,438.7	100.00		39,013.7	100.00	
B. White Males									
1. Diseases of the heart	5,103.3	44.39	1	57,682.2	40.68	1	15,050.1	32.89	1
2. Malignant neoplasms	1,649.4	14.35	2	20,635.8	14.55	2	6,080.9	13.29	3
3. Vascular lesions of the central nervous system	1,247.6	10.85	3	11,785.6	8.31	4	2,060.4	4.50	6
4. Accidents	660.6	5.75	4	13,659.4	9.63	3	7,963.4	17.40	2
5. General arteriosclerosis	298.4	2.59	6	1,891.9	1.34	10	79.3	.17	11
6. Diabetes mellitus	149.5	1.30	10	1,780.4	1.26	11	484.9	1.06	10
7. Suicide	185.6	1.61	9	3,831.2	2.70	6	2,102.5	4.60	5
8. Influenza and pneumonia	298.8	2.60	5	3,200.4	2.26	7	923.7	2.02	8
9. Nephritis and nephrosis	199.7	1.74	8	2,509.6	1.77	8	907.9	1.99	9
10. Cirrhosis of the liver	137.2	1.19	11	2,389.1	1.69	9	1,088.8	2.38	7
11. Tuberculosis, all forms	255.8	2.22	7	4,895.8	3.45	5	2,475.7	5.41	4
12. All other causes	1,311.8	11.41	...	17,529.4	12.36	...	6,538.7	14.29	...
Total	11,497.7	100.00		141,790.8	100.00		45,756.3	100.00	

ages of life. In this manner we can explain the rise in rank for accidents, tuberculosis, and suicides and the fall in rank for vascular lesions affecting the central nervous system and the decline in the percentage importance of diseases of the heart.

These observations apply with the same force to the lesser causes of death as to the major. Among them we find for physicians that not only suicide but also tuberculosis and cirrhosis of the liver shift to a higher rank in life years lost than in mere numbers of deaths, and, as between life years and working years lost, nephritis also moves up in rank. Conversely, general arteriosclerosis and pneumonia shift downward respectively to the last and next to the last positions for both life and working years lost. Even diabetes mellitus drops from sixth in numbers and life years lost to ninth in working years lost. Since the extra deaths among physicians from diabetes mellitus occurred at ages 60 and over, it is not surprising that white males lost a greater number of working years from diabetes mellitus than did physicians. The direction of movement in rank among causes so far as these measures are concerned was the same for white males as for physicians with but two exceptions: for physicians nephritis was higher and diabetes lower in working years lost than in life years lost, but the shifts were just the opposite for white males.

TABLE 3A.—*Ranking of Five Leading Causes of Death for Physicians and White Males*

Cause of Death	By No. of Deaths	By Life Years Lost	By Working Years Lost
A. Physicians			
Diseases of the heart	1	1	1
Malignant neoplasms	2	2	2
Vascular lesions	3	3	5
Accidents	4	4	3
Suicide	7	5	4
B. White Males of the Same Ages			
Diseases of the heart	1	1	1
Malignant neoplasms	2	2	3
Vascular lesions	3	4	6
Accidents	4	3	2
Tuberculosis	7	5	4

The relative positions of the causes as between physicians and white males were changed little in shifting from one measure to another. It is true that accidents moved ahead of malignant neoplasms for white males in working years lost and general arteriosclerosis fell to last place for physicians in life years lost. The higher rank for suicide and diabetes among physicians than white males, however, prevailed for all three measures, just as the higher rank for pneumonia and tuberculosis did among white males. Moreover, diseases of the heart and malignant neoplasms in this adult population accounted for almost the same percentages of totals according to all three measures.

Some Historical Comparisons

The death rates for 10-year age groups (age 25 and over) developed by Emerson and Hughes [4] for 1925, applied to our age distribution of living physicians in 1950, produce 12,842 deaths, or 16.5% more than the reported total of 10,726 (excluding 12 deaths below age 25) in 1949-1951. Similar computations with the age-specific rates for 10-year age groups developed by Dublin and Spiegelman [5] for 1938-1942 produce 12,394 deaths, or 13.5% in excess of the 10,726 deaths in 1949-1951. These differences roughly measure the improvement in physician mortality since 1925.

Using the age-specific mortality rates among white males for 1920 applied to the age distribution of white male physicians in 1925, Emerson and Hughes found an excess in the number of deaths among white males. For the period 1938-1942, Dublin and Spiegelman found that the number of deaths among male physicians slightly exceeded the number of deaths expected among white males of the same ages. Our present study for 1949-1951, like the 1925 study and unlike the 1938-1942 study, found an excess in the number of deaths among white males of the same ages as our physician population. The differences in techniques and our belief that our source data are superior to those in the two preceding studies of physician mortality make us hesitant to conclude that the relationship between the number of physician deaths and the number of deaths among white males of the same ages has undergone any substantial change since 1925 or since 1940.

Moreover, age-specific mortality rates for white male physicians were lower than those for white males in 1925, and slightly higher (for male physicians) in 1938-1942; as already noted in this study, the rates (for all physicians) were slightly lower in 1949-1951. Physician death rates in these three studies have compared most favorably with those of white males at the younger ages (25-34 and 25-44) and least favorably within the broad age group 45-64. For the most recent period examined, 1949-1951, we found the physician experience poorer than that for white males at ages 60-69. Certain other comparisons for these two previous studies are suggestive but not conclusive.

Experience with respect to expectation of life is similar to that for death rates. For physicians the expectation of life at age 30 rose from 38.0 years in 1925 [6] to 41.0 years in 1950; for white males the corresponding average number of years of life remaining were 37.6 and 40.3. The physician at age 50 had on the average 21.7 years remaining in 1925 and 23.2 in 1950; white males had 21.7 in 1925 and 22.8 in 1950. More generally, physician expectation of life was lower than that of white males in 1925 at the ages over 50, and in 1938-1942 between the ages of 25 and 70; and the excess for physicians was least in 1949-1951 at age 60.

Unfortunately, groupings of physician deaths by causes for the purpose of comparing our study with the two previous studies is hazardous because of revisions in the international list of the causes of deaths that were made between 1925 and 1940 and between 1940 and 1950. We made a considerable number of computations for the purpose of producing such historical comparisons by groups of causes. The comparisons did indicate that in 1938-1942 there were several groups of causes for which physician deaths exceeded expected deaths among white males of the same ages, whereas in 1949-1951 there were only three such causes.

Summary

An examination of the death certificates of more than 10,000 physicians who died during the period 1949-1951 in relation to the population of living physicians as of April 1, 1950, revealed that the number of physician deaths was only 93.3% of the number of

deaths that would have been expected if physicians had experienced the age-specific mortality rates of white males. Physician mortality experience was better than that for white males in all except two of the five-year age groups and for 8 of the 11 groups of leading causes. It was poorer in the age groups 60-64 and 65-69 and for diseases of the heart, diabetes mellitus, and suicide; for the first two of these three causes, the differences were statistically significant. Although the expectation of life at all ages was greater for physicians than for white males, differences in the median and mean ages at death were not significant. Diseases of the heart clearly comprised the leading cause of death for both physicians and white males according to all three measures—numbers of deaths, life years lost, and working years lost. Unfortunately, separate mortality tables could not be developed for the several speciality groups and for females.

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COUNCIL ON FOODS AND NUTRITION

Report to the Council

The following comments on fats in the diet are based on a speech given at the Margarine All-Industry Conference, Hot Springs, Va., May 24, 1956. The Council has authorized publication of this report.

PHILIP L. WHITE, SC.D., *Secretary.*

FATS IN THE DIET IN RELATION TO ARTERIOSCLEROSIS

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Current research on the causes of arteriosclerosis and coronary heart disease at least encourages an optimistic outlook. Recent findings indicate that these conditions may be acquired diseases rather than inevitable consequences of the aging process. Considerable evidence is being accumulated that these conditions, which are most common in some of the more highly civilized populations and appear to be increasing in prevalence, may be in large measure a result of faulty nutrition. A spirit of hopefulness has been aroused that this scourge may be prevented or checked by appropriate regulation of the diet.

It is imperative that the urgency in the situation not be allowed to disrupt a sound and orderly attack on the problem, through exploitation by selfish interests or undue emotion and competitiveness among investigators. A prime need is for conservative, deliberate, and cautious interpretation and application of the fragments of knowledge seemingly related to the solution of these problems. When knowledge seems sufficiently certain to justify application, great caution must be exercised in manipulating the diets of populations lest unanticipated deficiencies or imbalances are created. Interesting but unproved leads must not be made the basis of dietary recommendations.

The focal point of interest at present is the role of dietary fat. Dietary fat is not a single, simple substance but is a complex mixture of fats, steroids, lipid-soluble pigments, and other substances. Some of the fatty acids are essential for certain animals and possibly for the health of the human species and should be supplied in the diet. A certain amount of fat in the diet is required to make it palatable and satisfying. Fats from the various animal and vegetable sources differ in their composition. Nutritionally, a major recognized difference is the relative amounts of so-called essential fatty acids.

For some time there have been indications that the total amount of fat consumed bears some relation to the amount of a fatty substance, cholesterol, that accumulates in the blood. In turn, the cholesterol in the blood has been thought to have some part in the causation of arteriosclerosis and coronary heart disease. High levels of fat in the diet and high levels of cholesterol in the blood have commonly been held responsible for the increasing incidence of these conditions in certain populations that habitually consume diets containing an abundance of fat.

In this connection, it now appears that a distinction must be made between fats from the usual animal sources and the majority of fats of vegetable origin. Recent studies in man and in experimental animals suggest that saturated fatty acids may lead to greater accumulation of cholesterol in the blood than a corresponding amount of unsaturated fatty acids. Unprocessed vegetable fats include larger amounts of the so-called essential unsaturated fatty acids than do most animal fats; the significance of this difference in preventing or relieving the accumulation of excessive amounts of cholesterol in the blood is the subject of intensive investigation at present.

Attention should be focused on the amounts of saturated and unsaturated fats in the diet rather than on the total amounts of fats, whether of vegetable or animal origin. The ratio between the amounts of "essential" unsaturated fatty acids and the saturated fatty

Chairman, Department of Pediatrics, College of Medicine, State University of Iowa.

acids may be the crucial consideration. An actual deficiency of the so-called essential unsaturated fatty acids severe enough to cause the signs and symptoms observed in animals, but not in man, may not be prevalent; however a relative insufficiency of "essential" unsaturated fatty acids may be important in the pathogenesis of arteriosclerosis. The metabolism of the load of saturated fatty acids imposed by the more abundant fat in the diets of some populations may require the simultaneous provision of larger amounts of "essential" unsaturated fatty acids than are required to deal with diets containing relatively small amounts of saturated fatty acids, whether of animal or vegetable origin.

Besides fat, many other factors such as sex, heredity, age, physical activity, other dietary deficiencies, total amount of calories ingested, and disorders of the liver and kidney influence the amount of cholesterol in the blood. It is not likely that a single cause will be found responsible for all cases of arteriosclerosis, nor should expectation be aroused that this condition will be completely prevented or regularly checked by a mere altering of the kind or amount of fat in the diet. The extent to which the findings in experimental animals can be applied to the disease state in man is by no means certain.

It is easy to assume that obesity is the result of eating too much fat, but this is not strictly true. The body is able to convert other foodstuffs such as carbohydrate into fat. The ingestion of an excessive amount of calories or energy-producing food leads to obesity. It is generally easier and safer for a person to reduce his weight on a diet containing the usual proportion of fat but restricted in total calories because the appetite is better satisfied with a diet containing fat. The problem of obesity is separate from the determination of the proper use of fat in the diet for the promotion of sound nutrition.

The need for caution in setting arbitrary levels for the amounts of animal or vegetable fats in the diet is made apparent when one considers the paucity of pertinent knowledge on the role of fat and the constituent variety of fatty acids in human nutrition. It is obviously unwise and unnecessary to exclude fats from the diet, and even if desirable would no doubt be virtually impossible. Estimations of total fat consumed by populations with differing incidences of arteriosclerosis are too crude to serve as more than a guide for planned investigations. Only a clue as to the qualitative and quantitative significance of unsaturated versus saturated fatty acids has been gained from epidemiological surveys.

The present situation demands that the public receive guidance from competent physicians in the interpretation of the exciting but fragmentary knowledge that seems to bear upon the problems of arteriosclerosis and coronary heart disease. Exploitation of incomplete knowledge by industries for the purpose of competition or by investigators for personal recognition would be irresponsible and detrimental to progress in conquering these major afflictions. Everyone concerned will benefit from any aid that can be given to research directed at basic knowledge of these diseases or to predisposing disturbances in metabolism within the individual, even though the immediate application may not be apparent.

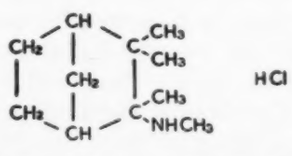
COUNCIL ON PHARMACY AND CHEMISTRY

NEW AND NONOFFICIAL REMEDIES

Monographs and supplemental statements on drugs described here and in subsequent editions of New and Nonofficial Remedies are based on the evaluation of available scientific data and reports of investigations. Applicable commercial names for preparations of evaluated drugs are listed at the end of monographs and parenthetically in the text of supplemental statements; additional commercial names of which the Council is informed will be included with subsequently published supplemental statements and annual editions of New and Nonofficial Remedies.

H. D. KAUTZ, M.D., *Secretary.*

Mecamylamine Hydrochloride.—3-Methylaminoisocamphane hydrochloride.—The structural formula of mecamylamine hydrochloride may be represented as follows:



Actions and Uses.—Mecamylamine hydrochloride, a secondary amine, exerts a powerful inhibitory effect on the transmission of impulses at autonomic ganglions. Although it is not a quaternary ammonium compound, its ganglionic blocking action is almost identical to that of hexamethonium; therefore, the drug effects a decrease in blood pressure in both normotensive and hypertensive subjects. Unlike hexamethonium, mecamylamine hydrochloride is almost completely absorbed from the gastrointestinal tract and is effective by the oral route. Because it is more uniformly absorbed than hexamethonium, fluctuations in gastrointestinal activity, such as diarrhea and constipation, do not produce so great a variation in hypotensive effectiveness with oral dosage. The drug exerts a longer duration of action than does hexamethonium, and equivalent reduction in blood pressure may be achieved with a lower dose. Since the onset of action is more gradual than that with hexamethonium, the incidence of sudden drops in blood pressure is appreciably reduced. As with all ganglionic blocking agents, prolonged administration leads to decreased effectiveness. This tolerance is not as pronounced with mecamylamine as with hexamethonium and is somewhat less than that observed after therapy with

pentolinium tartrate. Cross tolerance between mecamylamine and the other ganglionic blocking agents has not been observed.

In general, the indications for therapy with mecamylamine hydrochloride are the same as those for other ganglionic blocking agents. Thus, the drug may be employed for the treatment of moderate to severe hypertension; it is sometimes successful in arresting the malignant phase of hypertension. Because of the unpleasant nature of side-effects that frequently accompany therapy with ganglionic blocking agents, the use of mecamylamine should generally be reserved for those patients with the more severe forms of hypertension who have not responded adequately to milder drugs such as the Rauwolfia alkaloids. It should never be used in patients with mild or labile hypertension. When employed under carefully controlled conditions with adequate attention to proper regulation of dosage, mecamylamine may be expected to reduce blood pressure effectively and to ameliorate various manifestations of hypertensive-cardiovascular disease. These include such symptoms as headache, dizziness and vertigo, hypertensive encephalopathy and cerebral or subarachnoid hemorrhage, retinopathy, cardiac hypertrophy, and, in some cases, cardiac decompensation. Although the drug may be of benefit in some hypertensive patients with angina pectoris, care should be exercised in its administration, since in other patients it may exacerbate anginal attacks or precipitate myocardial infarction in the presence of coronary insufficiency.

For the treatment of the more severe types of hypertension, mecamylamine can be employed in conjunction with reserpine. Such combination therapy may sometimes produce a more intense antihypertensive effect than can be obtained with mecamylamine alone. In addition, this regimen allows for a lower total dosage of mecamylamine, with a consequent lessening in the side-effects attributable to ganglionic blockade.

Like all agents of this class, mecamylamine hydrochloride is capable of producing a variety of unpleasant side-effects referable to inhibition of both sympathetic and parasympathetic nervous systems. Dryness of the mouth, visual disturbances, constipation preceded by diarrhea, urinary retention, anorexia, nausea and vomiting, weakness and fatigue, sedation, interference with sex functions, dizziness, syncope, and paresthesias have been observed in patients undergoing therapy with this drug. Patients should likewise be warned about the occurrence of orthostatic (postural) hypotension. Extreme care must be exercised with regard to bowel function, since the constipation that frequently accompanies therapy with mecamylamine can proceed into paralytic ileus. To avoid this serious complication, some physicians advise routine concomitant administration of laxatives; however, all patients should be advised to discontinue hypotensive therapy immediately if abdominal distention, decreased borborygmi, or other signs of bowel stasis become evident. In such cases, intensive cathartic therapy is indicated; cholinergic agents, such as neostigmine methylsulfate or bethanechol chloride, may be used to treat impending or frank ileus and urinary retention. In poor-risk patients with malignant hypertension and azotemia or other signs of renal insufficiency, often in association with cerebral atherosclerosis, the administration of large doses may rarely produce tremor or mental aberrations, such as delusions or hallucinations.

Mecamylamine hydrochloride has not been studied for sufficiently long periods to determine with certainty the frequency and severity of all side-effects as compared with those of other ganglionic blocking agents. On the basis of current evidence, it would appear that these are no more troublesome than those with other agents of this class and that some reactions, notably impairment of vision, are less in number and severity than those caused by hexamethonium.

Contraindications to the use of mecamylamine hydrochloride are the same as those for other ganglionic blocking agents. These include such conditions as severe coronary insufficiency, recent myocardial infarction, retinal and cerebral thrombosis, and any other disorder characterized by severe reduction of blood flow to a vital organ. The drug should be administered with caution to patients with renal insufficiency. Rapid, excessive reduction in blood pressure is also dangerous in patients with severe and generalized atherosclerosis. If necessary, pressor amines may be administered to combat excessive hypotensive effects; however, since many patients under therapy with ganglionic blocking agents are more reactive than normal to pressor amines, dosage must be reduced accordingly. Since the drug blocks the normal vasoconstrictor hemostatic mechanisms, its use is contraindicated in any situation in which there is a large reduction in blood volume. Mecamylamine hydrochloride is contraindicated also in the presence of glaucoma, organic pyloric stenosis, and uremia.

Dosage.—Mecamylamine hydrochloride is administered orally. Dosage is highly individualized according to the severity of the hypertension and the response of the patient. The latter varies greatly. Ideally, dosage should be adjusted to the point where desired blood pressure can be maintained without the appearance of severe side-effects. This situation is not always easily attainable. In addition to great variations in individual susceptibility, other factors, such as excessive heat, fever, infection, hemorrhage, pregnancy, antihypertensive or other drugs, alcohol, vigorous exercise, surgery, and anesthesia, alter the hypotensive response. Excessive salt loss, such as that occurring after diarrhea, vomiting, and mercurial diuresis, increases the hypotensive effect of the drug and necessitates reduction in dosage. Diurnal variations in blood pressure require administration of lower doses in the morning than those given in the afternoon and evening. Seasonal variations also alter the hypotensive effect of mecamylamine, larger doses being required in the winter months than in the summer. It should also be remembered that ordinarily a smaller reduction in blood pressure is produced by the drug when the patient is in a supine or sitting position; therefore, dosage should be determined on the basis of blood

pressure readings made with the patient in the standing position. Since frequent standing blood pressure recordings under basal conditions afford the best method for accurate dosage adjustment, these are best carried out in the home by the patient or a member of the family.

Therapy is initiated by the administration of 2.5 mg. twice daily. This dosage is then increased by increments of 2.5 mg. at intervals of not less than two days until the desired blood pressure response has been obtained. The average daily dose required for maintenance is about 25 mg. in three divided doses. Individual susceptibility to the drug is so great that as little as 1 mg. may mean the difference between tolerable and intolerable side-effects.

Applicable commercial name: Inversine Hydrochloride.

Merck Sharp & Dohme Research Laboratories, Division of Merck & Co., Inc., cooperated by furnishing scientific data to aid in the evaluation of mecamylamine hydrochloride.

COUNCIL ON MEDICAL PHYSICS

Report of the Council

The Council has authorized publication of the following report.

RALPH E. DEFOREST, M.D., *Secretary.*

PROGRAM OF THE COUNCIL ON MEDICAL PHYSICS

The Council on Medical Physics, a standing committee of the Board of Trustees of the American Medical Association, is composed of 13 members from various fields of medicine and the basic sciences. The members were chosen because of the special knowledge that they have, and not as representatives of specialties. The Council was created by the Board of Trustees in accordance with the actions of the House of Delegates at the Clinical Meeting in Boston, Nov. 29-Dec. 2, 1955,[1] and at the Annual Meeting in Chicago, June 11-15, 1956.[2]

The purpose of the Council on Medical Physics is to encourage an understanding of the actions and rational uses of apparatus and physical methods employed in the study of the human body and its functions, notably the diagnosis, treatment, and prevention of disease. Since the physical methods used in medicine are explained in terms of the sciences of physics, biophysics, and medicine, the Council was named Council on Medical Physics. In pursuit of this purpose, the Council program will consist of the evaluation of classes of apparatus and physical methods, the encouragement of research, and the performance of such other services within its purview that may be assigned by the Board of Trustees or decided upon by the Council.

Apparatus and Physical Methods Evaluation.—The Council evaluates, when desirable, new, previously considered, or established classes of physical methods and apparatus intended for the diagnosis, treatment, and prevention of disease. The evaluation statements contain, where applicable, the principles, actions, uses, contraindications, and appropriate safety warnings regarding the use of the class of apparatus or physical method being reported upon. These reports are submitted to the Editor of THE JOURNAL for publication in the Council column.

The Council's evaluation statements are prepared after consideration of scientific clinical and laboratory evidence concerning a class of apparatus or a method and after consideration of other available evidence, including published and unpublished reports. The Council obtains opinions from experts in the field who serve as consultants. The Council itself does not conduct clinical or laboratory tests, experiments, or research in evaluating apparatus or physical methods.

It is important to note that the Council does not consider individual brands of apparatus but reports only on general classes of apparatus. Occasionally, a device made by only one manufacturer may constitute a new idea or method of treatment. In this instance, although the device name and model will not be mentioned, the general principles employed in any such class of apparatus will be discussed. No endorsement or guarantee of any specific brands of apparatus is intended or implied.

The Council decides whether to undertake the evaluation of the evidence pertaining to a class of medical apparatus or physical method. Manufacturers are encouraged to cooperate with the Council by providing data and information, including scientific laboratory and clinical evidence (published and unpublished reports), regarding the usefulness, safety, actions, mode of operation of, and contraindications for their apparatus, if it falls within a class the Council has voted to evaluate. Before compiling and providing any such data and information for the Council, the manufacturer should contact the Secretary of the Council on Medical Physics, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill., to determine whether the Council is considering, or will consider, the evaluation of the evidence relating to that particular class of product.

All available evidence, including the opinions of the Council consultants on such evidence, is submitted to a Council referee. The referee makes his recommendations regarding the evaluation report, which may be prepared either by the Council staff or by an author designated by the Council. This report, together with the referee's recommendation, consultants' comments, and copies of the available evidence, is provided to all the Council members for consideration. The proposed evaluation report is then reviewed and revised in accordance with the comments of the members. After adoption by vote of the Council, a copy of the report will be sent for comment to known manu-

facturers. Comments and criticisms received from the manufacturers are considered before the report is sent to the Editor of THE JOURNAL for publication.

As another activity, the Council will compile informative articles on the role of physical agents and methods in the care of patients with specific diseases, as well as such articles in general and special areas of medical practice.

Encouragement of Research.—The Council desires to encourage needed research on practical problems involving apparatus and methods falling within the scope of medical physics. The Council does not finance research or conduct clinical and laboratory projects itself. The Council plans to point out areas in which research is needed and will attempt to facilitate the development of sound investigative programs leading to the production of scientific evidence necessary in evaluating the usefulness of clinical devices, apparatus, and instruments. The value of such evidence is apparent to the manufacturer and the profession.

Progress by the medical profession in the application to medicine of new contributions from all branches of physics and engineering is proceeding at an ever-increasing rate. New devices and the new methods they employ are in many instances unfamiliar to most practitioners. An appreciation of the actions and rational uses of these apparatus and methods is desirable if the best interest of the patient is to be served. The Council intends, through its program, to provide a useful and valuable information service to the profession.

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2. Report of the Board of Trustees, Council on Medical Physics, J. A. M. A. **161**: 157 (May 12) 1956. Proceedings of the House of Delegates of the American Medical Association, Annual Meeting, Chicago, June 11-15, 1956, J. A. M. A. **162**: 482 (Sept. 29) 1956.

MEDICINE AT WORK

DOCTOR, TAKE THE STAND

Almost unnoticed, two great professions—medicine and law—are teaming up in a new public service effort that promises to save the taxpayers millions of dollars a year.

Director C. Joseph Stetler of the American Medical Association's Law Department was concentrating not on taxes but on a legal point nearly two years ago during his summer vacation. His point was that, with medical testimony figuring as key evidence in about three out of every four court actions, the doctor and the lawyer should get to know one another's work a little better. His point was that many doctors were not doing their best on the witness stand, often because just as many lawyers were not doing their best in bringing out enough clear medical evidence. Stetler's point was that this lack of rapport was impeding the administration of justice.

Invariably in situations of this sort, the suffering is felt most deeply not by the physician or attorney but by the general public—ranging from the plaintiff or defendant whose case is not presented fairly to the unrelated man on the street who must foot most of the bill for the trial.

So Stetler carried on a policy begun back in 1914 when the A. M. A. House of Delegates voted acceptance of a three-year survey report pointing up the important role of the physician as a medical witness. (That policy also set the stage for closer doctor-lawyer cooperation outside the courtroom, such as the creation of a joint committee on narcotics addiction and joint conferences on chemical tests for motorist intoxication.)

Stetler wrote a skit illustrating the boners pulled by both physicians and attorneys in a hypothetical court case. Here, the doctor is useless to a railroad man trying to collect damages for a permanent back injury. The physician shows himself as a bungling amateur. He is unprepared with records, slipshod in memory, and so verbose in terms not understood by the jury that he sounds like an ancient medical textbook. This spectacle, coupled with a skillful defense presentation, is all the "reasonable doubt" that the suspicious jury needs to decide against awarding damages for the injured man.

Proper Presentation

In the second half of this before-and-after story, both the physician and the injured man's lawyer are so well-prepared (with the doctor using a shadow box to illuminate x-rays and the attorney expressing his familiarity with medical examination methods) that the jury easily understands what is being presented.

That skit had its première before an audience of 300 at a medicolegal symposium in Chicago Oct. 9, 1955. Aside from making medical matters clearer to attorneys, and vice versa, the session accomplished something equally important. It had doctors and lawyers regarding each other with new respect. The symposium idea began spreading across the country, often bringing together both professions for the first time in their community's history. Such was the case in Peoria, Ill., recently, where 300 physicians and attorneys assembled in a somewhat cagey atmosphere.

Then they viewed the play, viewed each other's viewpoints of the performance, and very much liked what they saw. It was a heartening occasion.

The one-hour play has been enacted successfully for the two professions at meetings in a dozen cities—including New York, Omaha, Denver, Fort Wayne, Ind., Atlanta, Ga., and Des Moines, Iowa. There were three presentations before state medical association houses of delegates and one for a comparable bar association body. At least three more performances are scheduled in coming weeks. Several local groups, impressed with the response at regional meetings, have written similar scripts of their own.

By late fall, Stetler decided that the demand called for reaching a relatively mass market in medicine and law. So the A. M. A. and the American Bar Association, in cooperation with a Cincinnati pharmaceutical house, the Wm. S. Merrell Company, produced a 35-minute film version of the play in the New York City studios of Dynamic Films, Inc. Shooting on the script took one week, and "The Medical Witness" was premièred last Nov. 27 at the A. M. A. Clinical Session in Seattle for hundreds of physicians and attorneys. There was such interest in the film that two showings were needed to accommodate standing-room audiences.

This week the motion picture is being made available without charge, through the A. M. A. film library, to law and medical societies and schools across the nation. It is the first in a series of six movies on medicine and the law.

Really, it is for the interest of all. For example, in New York City each day of a trial costs the taxpayers at least $750. The average trial lasts about three days, for a total of $2,250. So it is readily apparent that expert medical testimony in its fairest sense—when applied to the heavily congested court calls of New York, Chicago, Detroit, Philadelphia, Los Angeles, and many other cities—not only would reduce the number of trial days but also would result in the settlement of cases prior to the trial stage.

Large Dollar Sign

What attorney would risk the possibility of losing a questionably proved case when he is reasonably certain of an effective medicolegal counterattack? Expand that picture to cover the multitude of cases on file throughout the land and the view is bound to focus on a large dollar sign: millions of dollars saved annually.

Certainly, the gains to justice through closer liaison between doctors and lawyers are more than monetary. Another benefit lies in greater public respect for both professions, resulting in increased confidence generally in the administration of justice and in medical practice. This, in turn, would tend to encourage expert testimony from many physicians who in the past have recoiled in disgust at two sights: the ignorant and corrupt medical man who hires himself out as a partisan for one side or the other, and the lawyer who fosters it by calling for a wrongful slant on medical testimony.

As A. M. A. President Dwight H. Murray put it last August at an American Bar Association meeting in Dallas: "I am convinced that the major portion of the difficulty with medical expert testimony stems from the minority of cases wherein the system is not so much at fault as are the men—of your profession and mine—who pervert the system to their selfish ends."

Both the A. M. A. and the A. B. A. believe that medicolegal skulduggery in the courts is the exception rather than the rule. More common is the case in which a perfectly honest and sincere doctor and lawyer unintentionally bring about a miscarriage of justice through improper or confused presentation of the facts. When evidence is presented thoroughly and accurately so that a just decision can be made, the doctor-witness and the lawyers for both sides find themselves speaking the same language.

Who can say what unforeseen additional benefits may accrue from this growing tendency of physicians and lawyers to join in the quest for justice—not through being forced together by legislation, but by the more solidifying experience of voluntary cooperation? The doctor, more than any other professional man, is called as a key witness in court actions. Perhaps his greater accord with men of law will set a clear pattern for experts in other arts and sciences who often are handicapped within their own specialties when they are called upon for evidence.

Meanwhile, uppermost now in this new and sweeping doctor-lawyer rapport is the promise of less abuse and deficiency in the field of expert medical testimony. It can mean less delay from the fantastic pileup of pending damage suits, increased knowledge of their own and one another's range of endeavor, and the prospect of future accord in all matters of mutual interest for the welfare of their fellow man.

Left, in this scene from the motion picture "The Medical Witness," the physician on the stand tries to illustrate his testimony with an x-ray film that would be unclear to the jurors even if the lawyer were not blocking their view.

Center, a shadow box is used to illuminate a diagnostic finding from the same x-ray picture—so that the jury can see the basis of the expert medical testimony in the same case.

Right, Dr. David B. Allman, A. M. A. President-Elect (left), joins with president David F. Maxwell of the American Bar Association in presenting the new medicolegal film "The Medical Witness" at the A. M. A. Clinical Session in Seattle.

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BLOOD GROUP PARADOXES

GUEST EDITORIAL

Alexander S. Wiener, M.D.
and
Irving B. Wexler, M.D.

Up to a decade ago, descriptions of clinical investigations frequently suffered from a failure to apply statistical methods. Investigators have since become so sensitized to the value of biometrics that nowadays rarely does an article appear without its standard errors and chi squares duly recorded. Unfortunately, at the same time there has been a tendency to overlook the fact that mathematics is no substitute for common sense. If the premise from which an investigation starts is false and the observations inaccurate, even the most painstaking calculations will lead to erroneous conclusions. A possible example of this is provided by the recent epidemic of articles dealing with the distribution of the blood groups in various diseases.

More than 20 years ago studies on the distribution of the ABO blood groups in disease enjoyed considerable vogue. At that time, the blood groups were studied in such conditions as dementia precox, malaria, general paresis, migraine, epilepsy, longevity, various skin diseases, bone and joint tuberculosis, dental caries, susceptibility to poliomyelitis, and many other conditions. However, whenever a supposed correlation between blood groups and disease was reported, the results generally could not be confirmed by subsequent investigators. For example, in general paresis one study reported an excess of group AB, another reported an increase in group B as well as group AB, and still a third an excess of group A, while most workers found no difference at all. Some of the correlations were real but could be explained by so-called stratification in a heterogeneous population. As an example, if a population consisted of a mixture of two ethnic groups, one resistant to a particular disease and predominately blue-eyed and the other susceptible to the disease and predominately brown-eyed, it would be found that in a random sampling of the entire population relatively more people with brown eyes would have the disease. This explanation rarely had to be invoked, however, since in most of the cases the real difficulty proved to be faulty methods of collecting the data. Eventually, workers in the field realized the inherent fallacies in these studies, and it was accepted that the ABO groups had no effect on health, except in hemolytic disease of the newborn infant, where isosensitization of the mother provided a logical explanation. Recently, however, investigations of this type have been resumed on a large scale.

During the past few years, reports have been published purporting to show an association between blood groups and such conditions as duodenal ulcer, gastric carcinoma, pulmonary cancer, rheumatic fever, sarcoidosis, diabetes mellitus, pernicious anemia, fertility, pituitary adenomas, fractured femurs, Dupuytren's contracture, bronchiectasis, portal cirrhosis, bronchopneumonia in childhood, arteriosclerosis, and hypertension. In some cases the technique of blood typing is suspect, as in the report that claimed that every one of 28 patients with Dupuytren's contracture belonged to type Rh_1Rh_2. In one of the newer studies reporting an association between duodenal ulcer and group O, a study that is made impressive by virtue of the large size of the series involved, the controls consisted of tens of thousands of blood donors typed within a short period of time in a blood donor center, while the experimental group was culled from the records of many hospitals over a period of several years. This difference in the method of compiling the data in the two series may have introduced a bias into the results. Significantly, when instead of using random donors as controls the relatives of affected individuals were used to make up the control series, the supposed correlation between blood group O and duodenal ulcer could not be confirmed.

Also of interest is a recent report claiming a supposed association between carcinoma of the body of the stomach and blood group O. In the control series of 30,000 blood donors, 48.9% proved to be of blood group O, while, among 225 patients with carcinoma of the body of the stomach, as many as 68.4% belonged to group O. These 225 were part of a larger series of 483 individuals, all of whom had carcinoma of the stomach, the difference being made up of two groups in which the cardia and the pylorus, respectively, were involved. Remarkably, in the total series of 483 the frequency of blood group O was only 47.8%, which is not significantly different from that in the controls. Clearly, a slight bias introduced when applying the arbitrary classification of the site of the cancer could account for the paradoxical result reported.

The report of the supposed association between the Rh type and sarcoidosis has already been refuted. Other reports await confirmation or denial. As a guide in evaluating such reports, it should be borne in mind that, in anthropological investigations on the distributions of the blood groups in samples from different parts of the same country or even the same city,

From the Division of Immunohematology, Jewish Hospital of Brooklyn, N. Y.

no great significance is ordinarily attached to differences far greater than have been observed in most of the studies on blood groups in disease.

One wonders how many readers who may have been impressed by the reported association between blood group A and fractured femur have pondered the possible pathway through which one's blood group could influence the occurrence of a fracture. Before too much energy is expended on such an exercise, let the thoughtful clinician remember that the hardest things to explain are those that are not true.

THE GENERAL PRACTITIONER'S AWARD

In accordance with the now well-established practice, the House of Delegates of the American Medical Association, on November 27, at the 10th Clinical Meeting in Seattle, named Dr. Edward M. Gans of Harlowton, Mont., the General Practitioner of the Year. The gold medal, designed especially to go with the award and to honor a general practitioner who has rendered exceptional service to his community, has been given annually since 1948. Dr. Gans, who has practiced medicine for 51 years, has practiced for 44 years in the Harlowton area. He was born December 27, 1875, at St. Cloud, Minn., and was graduated from the University of Minnesota Medical School in 1905. After an internship spent in the city of Duluth, Dr. Gans moved to Eveleth in Minnesota's famous iron mountain country, where he practiced for six years, then moved on to Dickinson, N. D., for one year, and in 1912 moved on to Judith Gap near Harlowton.

EDWARD M. GANS, M.D.

Always interested in community affairs, Dr. Gans was first health officer and then was elected mayor of Judith Gap, which position he left in 1917 to serve as a captain in the United States Army Medical Corps in France during World War I. After the war he returned to practice medicine in Judith Gap until 1929 and then moved to Harlowton. Dr. Gans was president of the Montana Medical Association in 1930, and in 1955 he became eligible and was made a member of that association's Fifty Year Club. He is one of the few physicians who has been in active practice in Montana for 50 years. Now 81 years of age, he is still active in the practice of medicine.

Dr. Gans has two sons following in his footsteps. The older, Dr. Paul Gans, is practicing in Lewistown, Mont., and the younger, Dr. Edward Gans, is practicing otolaryngology in Oakland, Calif.

The nine physicians who have received the General Practitioner award since the first was chosen in 1948 are Archer Chester Sudan, Kremmling, Colo.; the late William L. Pressly, Due West, S. C.; Andy Hall, Mount Vernon, Ill.; the late Dean Sherwood Luce, Canton, Mass.; Albert C. Yoder, Goshen, Ind.; John M. Travis, Jacksonville, Texas; the late Joseph I. Greenwell, New Haven, Ky.; Karl B. Pace, Greenville, N. C.; and E. Roger Samuel, Mount Carmel, Pa.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The year 1957 will mark a milestone in the history of the Council on Industrial Health, which will have completed 20 years of work in striving to make occupational health programs serve more effectively in complementing the services of clinical medicine and community health. Its program has evolved over the past 20 years from one of limited interests to one in which it has assumed leadership in a number of fields, particularly in the improvement of communication and cooperation between management, labor, the medical professions, and other groups concerned with employee health. One of the activities of the Council on Industrial Health is the Annual Congress on Industrial Health, which has become a nationally recognized medical forum. The wide range of discussions in previous annual meetings reflect both its interests and the current issues and problems that are of present-day concern to all those involved in maintaining high standards of occupational health.

The 17th Annual Congress on Industrial Health, to be held in Los Angeles, February 4-6, 1957, with its theme of "Spotlight on Burns-Vision-Pesticides-Noise" reveals one aspect of the Council's work. The technical discussions to be presented in connection with such topics as Vision in Industry, Health Hazards of Agricultural Chemicals, New Concepts in the Management of Burns, and New Developments in Hearing Loss due to Industrial Noise are demonstrations of the type of program and information the Council seeks to disseminate to the widest extent possible. The sessions planned will present new and hitherto unpublished data surrounding various developments in these fields of inquiry. The congress participants are acknowledged leaders in their fields, and their contributions will stimulate discussion and further inquiry for the medical and allied professions.

The detailed program of the forthcoming Annual Congress on Industrial Health (this issue, page 1478) speaks well for a highly rewarding meeting. The program spotlights more than a group of important discussions; it focuses attention on the kind of activity the American Medical Association encourages and stimulates in its quest to protect the health of the American worker.

ORGANIZATION SECTION

ADDRESS OF THE PRESIDENT

Dwight H. Murray, M.D.

Almost six months have elapsed since we last met to deliberate and act on medical affairs. The time has passed quickly, but not quietly. The rumble of war and revolution has resounded in our ears. The din from political battles has been deafening.

All of us—sooner or later—learn that today's events do not just swirl around us, but involve each of us. As doctors we cannot get away from them by claiming that our only interest is in the sick and that we cannot be bothered by political, social, and economic problems. These matters demand attention from the doctor as well as the lawyer, the businessman, the newspaper editor, the labor leader, and the worker.

If we are concerned about what happens on the international, national, and local fronts—and we should be—then certainly we cannot afford to be disinterested in what happens in our own area of health and medical affairs. Yet there is apathy in our ranks.

Replace Apathy with Active, United Profession

Today there is a greater need for a united, forceful, and informed profession than ever before. We have been caught in the throes of a social revolution which demanded something for nothing. Changes have been taking place all around us, and medicine has not escaped unscathed. For example, in a few days Public Law 569, the bill providing medical care for military dependents, becomes effective throughout the land. Contracts already have been signed with the government by the majority of our state societies. No longer can any doctor claim that this law does not affect him. No longer can he say that government laws really are not changing the practice of medicine.

Public Law 880, better known to all of us as H.R. 7225, is another case in point. Medicine now is facing the problem of protecting the taxpaying public from abuses and of cooperating with the government to carry out the provisions of the law. The law is now on the books, and we must provide the leadership necessary to make it work as well as possible.

It was encouraging to hear Ezra Taft Benson, Secretary of Agriculture, say last week before the American Association of Land Grant Colleges and Universities:

> Sooner or later, the accumulation of power in a central government leads to a loss of freedom. . . . Raids on the federal treasury can be all too readily accomplished by an organized few over the feeble protests of an apathetic majority. With more and more activity centered in the federal government, the relationship between the cost and the benefits of government programs becomes obscure. What follows is the voting of public money without having to accept direct local responsibility for higher taxes. . . . If the present shift of power from state to federal authority which started 25 years ago is allowed to continue, the states may be left hollow shells.

Read before the House of Delegates at the 10th Clinical Meeting of the American Medical Association, Seattle, Nov. 27, 1956.

It was encouraging to hear such comments from a member of the President's Cabinet. I only wish that all members of the official family and, more important, every member of the United States Congress felt the same way.

The expression of this philosophy, with which medicine so heartily agrees, sounds good, but putting it into practice is the thing we are really interested in.

Today the medical profession along with business and industry is caught between those who desire to promote sound government and those who desire even more intensely to perpetuate party power. Unfortunately, in recent years a benevolent federal government appears more attractive to the voting public than the preservation of individual freedom. Medicine must do its utmost to reverse this trend.

Medical Freedom Essential

In my travels around the country as your representative the last 18 months, I have seen little dissension or rancor within our ranks. However, I must report that I have seen too much complacency over governmental encroachment into medical affairs. And I am deadly serious when I say to you that apathy by the few, or by the many, can be detrimental to all.

No nation can merely reap the benefits of freedom; it also must sow seeds of freedom. In medicine the situation is the same. If an apathetic medical profession takes its freedom for granted, it will be the beginning of the end. A strong, free profession must work for freedom so that it may live in freedom. And history tells us that once medicine loses its freedom, other fields of private endeavor are immediately in danger.

I do not wish to paint a dark or distorted picture of medicine's free status and its stature in America today. But I do believe words of caution and an appeal for vigilance are in order. The road of apathy and disunity can lead only to disorder and perhaps disintegration, and we must sound a warning to all our colleagues who do not care, or who are pulling in the opposite direction. The road of alertness, action, and unity is the proper road for all of us to be traveling together.

If I had just one wish for the coming year, it would be to command the time and talents of the 160,000 physicians in the American Medical Association. I would set us all to the task of emphasizing and reemphasizing the absolute necessity of patient and professional freedom.

Patient's Right to Choose His Doctor

I believe it is one of our prime responsibilities to prove to our patients that their right to choose their doctor is a most important one. Free choice brings a bond of confidence between doctor and patient which no compulsory medical system can create. It means that the patient knows the physician will be interested in him as a person, not as just a serial number of the 2:45 appendicitis case.

For the doctor free choice means that the patient has selected him for his abilities, training, sincerity, and personality. When a patient comes into my office, I know he has made a choice. And from that moment there begins a physician-patient relationship of the highest order. To me the patient is someone special, and I in turn hope I am someone special to him.

Once the patient has made his choice, the physician automatically assumes an unqualified responsibility to the patient. No system of medical care that uses a third party to bring doctor and patient together can match our kind of cooperative performance for the treatment of illness, the cure of disease, and the betterment of the patient's health.

Freedom to select a doctor is part of everyone's great freedom to choose—to choose what he wears and eats, where he works and worships, and how he votes. Take away any part of this freedom and great damage is done to our democratic system.

Free Conduct in Medical Treatment

Another freedom closely tied to freedom of choice is freedom in the conduct of medical treatment. At the recent meeting of the World Medical Association in Havana, Cuba, Dr. Rolf Schloegell of Germany made a stirring defense of free conduct of medical treatment. He told us that the medical profession believes the attending physician alone is competent to decide what measures he deems necessary and will apply in order to bring about the desired improvement. He warned too of the danger of excessive restriction on the freedom of the patient and the attending doctor.

Yet the trend toward extending social security in the medical care field has been steady and has accelerated since the end of World War II. The dangers of shifting responsibilities for medical care from the patient and doctor to the government are obvious. The caliber of medical care cannot be as high when both patient and doctor are dependent upon government. Initiative succumbs to dictation, and self-reliance is replaced by the crutch of government.

We do not deny that there is an area of legitimate concern by the government for the health and welfare of the people. But each year government seems to extend that area. We get some idea of this expansion from the new federal medical budget. This year, according to our Washington Office, the average family will be paying $54.61 for the U. S. government's health and medical activities. And the total expenditures this year amount to 2.5 billion dollars—290 millions more than last year. Even in an over-all federal budget of 61 billion dollars, the total health cost of 2.5 billions is not insignificant. It is a billion dollars more than the cost of running the Commerce Department, half a billion more than that of running the Agriculture Department, and six times more than the Interior Department's budget.

Many expenditures obviously are necessary to keep up our unsurpassed public health standards, and research may pay rich dividends in scientific discoveries. But there is no doubt that much money is being spent on medical activities that should not involve government participation.

The trend is to spend more and more government money on health and medical matters because it is good politics. Apparently many Americans still want to see government in the role of a big brother, dishing out so-called gifts and bargains under the guise of benevolent economic planning.

I believe it is our duty, as it is everyone else's, to combat the attitude of "what's in it for me?" and to promote the long-honored creed of "what's best for all Americans and our free society?" I think that a nation can drift into state medicine inch by inch just as surely as if the scheme were foisted upon a people overnight. The "drift" method may take longer, but the result will be the same.

So it is time all of us sounded the alarm against soft and superficial security and against the invasion of personal responsibility. It is time we stood up together for militant freedom and for full rights and responsibilities of the individual.

Belgian Doctors Turn Back Government

There is no better example of what a unified medical profession can do than in the story of the recent fight of the Belgian doctors against the government's proposals for a state service of medicine.

Without consulting the medical profession the Belgian government proceeded to draft rules and regulations of health to be incorporated in the nation's social security legislation. Under the proposals doctors were to sign an agreement to abide by the present rules and any later regulations. For the patient there would be the usual red tape in getting medical care.

When the Belgian doctors learned of the scheme, they met in conference with the government. They told the government what they wanted and what they would not accept. The government agreed. For several months everything was quiet. Then the Belgian doctors suddenly read about the new health bill that the government was sending to Parliament. It was quite contrary to the earlier agreement worked out by the profession and the government. But the bill was passed quickly.

The Belgian medical profession protested and said it would not be placed under the Ministry of Labor. Instead the doctors proposed to set up their own plan of medical assistance. Before long, the government saw that the medical profession meant business and that the doctors' plan was an attractive one. So it declared that its own bill was not in force and could not be in force without the consent of the medical profession.

To me this fight against legislative intervention in medical care is excellent evidence that the profession can defend itself if it unites to defend the basic principles of freedom and if it offers constructive proposals. By using the Belgian national motto, "in union there is strength," the medical profession showed doctors everywhere that dangerous government plans can be turned aside by the strong.

I also read recently in the journal of the World Medical Association of the fight of the medical profession of Malta against a British government scheme

to introduce a full-time salaried medical service, without the right of private practice, on an island dependency of Malta. Here again the doctors reacted with unity and strength, and successfully thwarted the government's plan.

There is a lesson in these stories from Belgium and Malta. They prove that a unified profession has a great political power for good—the good of the patient, the doctors, and the nation.

Confidence of Patients, Understanding of Legislators Needed

While we are developing unity within our own ranks, I believe it is equally important to continue to build up the confidence and respect of our patients, and to make our legislators aware of the necessity for freedom in medical practice.

Let us never reduce the quality of service we render to our patients, and never lose the personal touch in medicine. Where there is any opportunity to improve upon our medical care, let us seize it and show our abilities to do an outstanding job. Satisfied patient-customers will give us deserving support when we need it.

We also should realize that the destiny of medicine can be determined to a large degree in the halls of Congress. If this be true, then it is even more important that we take an even greater interest in those who elect the congressmen. Sympathetic understanding of our position by federal legislators through the voting public will be an insurmountable deterrent to the forces supporting state medicine.

The day has come, gentlemen, when we can no longer look upon medical economics and social changes merely as issues to be considered during our limited leisure hours. Our interest in them cannot be superficial or intermittent. We now must pay daily attention to these matters. Medical socioeconomic affairs can no longer be just incidental with us. They must be a vital part of our life and of our profession.

Each of us, I believe, should dedicate himself to the words included in the oath of office taken by the President of the A. M. A.: "I shall champion the cause of freedom in medical practice and freedom for all my fellow Americans."

As doctors, representatives to the A. M. A., and spokesmen for the A. M. A., let us remember these words and live by them. And to alter a phrase of President Lincoln's only slightly: Let's make common cause to keep the good ship of medical freedom on this voyage, or nobody will have a chance to pilot her on another voyage.

ANNUAL CONGRESS ON INDUSTRIAL HEALTH

"SPOTLIGHT ON VISION-PESTICIDES-NOISE-BURNS"

Co-sponsors:
California Medical Association
Los Angeles County Medical Association
Northwest Association of Occupational Medicine
Western Industrial Medical Association

The Council on Industrial Health of the American Medical Association announces the following details regarding the 17th Annual Congress on Industrial Health, to be held at the Biltmore Hotel in Los Angeles, Feb. 4, 5, and 6, 1957. The technical discussions and scientific exhibits are open to all physicians, nurses, industrial hygienists, engineers, and others interested in occupational health. There is no registration fee.

VISION IN INDUSTRY

A Comprehensive Examination of Fundamentals and Fine Points

PRESENTED IN COOPERATION WITH THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

PART I

Monday, Feb. 4, 2 p. m.
Chairman—FRANKLIN M. FOOTE, M.D., New York
Components of a Complete Vision Program
FRANKLIN M. FOOTE, M.D., New York
A Critical Evaluation of Vision Screening Methods
MICHAEL J. HOGAN, M.D., San Francisco
Testing for Color Perception
DEAN FARNSWORTH, New London, Conn.
Estimation of Loss of Visual Efficiency
EDMUND B. SPAETH, M.D., Philadelphia
Relationships Between Illumination and Vision
H. RICHARD BLACKWELL, Ph.D., Ann Arbor, Mich.

PART II

Tuesday, Feb. 5, 9 a. m.
Chairman—EDMUND B. SPAETH, M.D., Philadelphia
Responsibilities and Limitations of the Industrial Nurse in the Vision Program
MARGARET HARGREAVES, R.N., New York
Elements of a Successful Eye Protection Program
JAMES E. O'NEIL, New York
RICHARD WILKINS, Los Angeles
The Prescription Safety Goggle Problem
E. J. SCHOWALTER, M.D., Chicago
Emergency Treatment of Chemical Injuries to the Eye
RALPH RYAN, M.D., Morgantown, W. Va.
Screening for Eye Disease
FRANKLIN M. FOOTE, M.D., New York

HEALTH HAZARDS OF AGRICULTURAL CHEMICALS

Tuesday, Feb. 5, 2 p. m.
Co-Chairmen—LEMUEL C. MCGEE, M.D., Wilmington, Del.
RUTHERFORD T. JOHNSTONE, M.D., Los Angeles
Agricultural Chemicals—Economic Facts, Laws and Regulations
ALLEN LEMON, M.D., Sacramento, Calif.
The Phosphorous-Containing Insecticides—Toxicology, Clinical Symptoms and Treatment
H. H. GOLZ, M.D., New York
The Chlorinated Organic Insecticides—Toxicology, Clinical Symptoms and Treatment
FRANK A. PRINCI, M.D., Cincinnati
Control of Hazards in the Use of Agricultural Chemicals—California Experience
ROBERT L. METCALF, M.D., Riverside, Calif.

BANQUET
(Informal)

Tuesday, Feb. 5, 7 p. m.
Presiding—WILLIAM P. SHEPARD, M.D., New York
Presentation of Award of the President's Committee on Employment of the Physically Handicapped
Address
DWIGHT H. MURRAY, M.D.
President, American Medical Association
Address
ERNEST B. HOWARD, M.D.
Assistant Secretary, American Medical Association

NEW CONCEPTS IN THE MANAGEMENT OF BURNS

Wednesday, Feb. 6, 9 a. m.
Chairman—PAUL S. RICHARDS, M.D., Salt Lake City
Brief Historical Résumé of the Subject
PAUL S. RICHARDS, M.D., Salt Lake City
Dry Aluminum Powder Therapy for Thermal Burns
M. D. MAXMEN, M.D., Toronto, Canada
The Exposure Method of Treatment
GEORGE T. VAN PETTEN, commander
Medical Corps, U. S. Navy, Newport, R. I.

Research in the Treatment of Burns
ROBERT D. PILLSBURY, Lieut. Col., Medical Corps, Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas
Oral Treatment of Burn Shock
KEHL MARKLEY, M.D., Philadelphia

NEW DEVELOPMENTS IN HEARING LOSS DUE TO INDUSTRIAL NOISE

PRESENTED IN COOPERATION WITH THE SUBCOMMITTEE ON NOISE IN INDUSTRY, COMMITTEE ON CONSERVATION OF HEARING, AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY

Wednesday, Feb. 6, 2 p. m.

Chairman—JAMES H. STERNER, M.D., Rochester, N. Y.
Methods for Conservation of Hearing
HOWARD P. HOUSE, M.D., Los Angeles
Status of Research Activities of the Subcommittee on Noise in Industry
ARAM GLORIG, M.D., Los Angeles
What Constitutes Disability and How Is It Measured
HALLOWELL DAVIS, M.D., St. Louis
Allowable Noise Exposure for Hearing Conservation
WALTER A. ROSENBLITH, Boston
Teamwork Solution of the Industrial Noise Problem—Successful Coordination of the Activities of the Medical Director, the Consulting Otologist, the Industrial Hygienist, the Audiometric Technician, the Safety Engineer, the Supervisory Staff, the Plant Engineer, the Personnel Director, and others
PAUL J. WHITAKER, M.D., Milwaukee

The Scientific Exhibits will include a number directly related to the technical discussions:

TREATMENT OF BURNS
BURN MANAGEMENT IN THE USS BENNINGTON DISASTER
PHOSPHATE ESTER INSECTICIDES
PESTICIDES
ACCIDENTAL POISONING IN CHILDREN
TESTING FOR EYE DISEASE
DEMONSTRATIONS OF VISION TESTING DEVICES
SPEECH AUDIOMETRY
AUTOMATIC AUDIOMETRY
MULTIPLE AUDIOMETRY
RESEARCH IN NOISE

Special tours of the research laboratories of the Subcommittee on Noise in Industry are scheduled for Monday, Feb. 4, at 10 a. m. and 8 p.m., and Thursday, Feb. 7, at 10 a. m. Advance reservations are desirable due to limitations on the size of the group that can be accommodated.

A hospitality committee will assist sightseeing visitors in planning trips to points of interest such as Disneyland, Farmers' Market, Old Mexico in Olvera Street, the Old Spanish Missions, Catalina, Knott's Berry Farm and Ghost Town, the Huntington Library and Art Galley, and famous restaurants. Regular tour service will also be available.

WORLD MEDICAL ASSOCIATION ELECTS OFFICERS

At its 10th General Assembly held in Havana, Cuba, Oct. 9-15, 1956, the World Medical Association elected the following officers:

President—1956-1957
DR. JOSE A. BUSTAMENTE, Cuba
President-Elect—1956-1957
DR. AHMET RASIM ONAT, Turkey
Treasurer—1956-1959
DR. ERNST FROMM, Germany
Members of Council—1956-1959
DR. GUNNAR GUNDERSEN, U. S. A.
DR. MARCEL POUMAILLOUX, France
DR. S. C. SEN, India
DR. LORENZO GARCIA-TORNEL, Spain

The Council of The World Medical Association elected the following officers for the coming year:

Chairman of Council
DR. LORENZO GARCIA-TORNEL, Spain
Vice-Chairman of Council
DR. L. R. MALLEN, Australia

The Officers of Committees for 1956-1957 include:

Editorial Board
DR. AUSTIN SMITH (U. S. A.), Chairman
International Liaison
DR. JEAN MAYSTRE (Switzerland), Chairman
Medical Education
SIR LIONEL WHITBY (U. K.), Chairman
Medical Ethics
DR. P. GLORIEUX (Belgium), Chairman
Miscellaneous Business
DR. OTTO RASMUSSEN (Denmark), Chairman
Planning and Finance
DR. T. C. ROUTLEY (Canada), Chairman
Social Security
DR. DAG KNUTSON (Sweden), Chairman
DR. ROLF SCHLOEGELL (Germany), Secretary

The Council appointed the following officers:

Regional Secretaries
Asia—DR. S. C. SEN, India
Australasia—DR. JOHN HUNTER, Australia
Europe—DR. PAUL CIBRIE, France
Latin America—DR. HECTOR RODRIGUEZ H., Chile
World Medical Journal Officials
DR. AUSTIN SMITH (U. S. A.), Executive Editor
DR. STANLEY S. B. GILDER (Canada), Associate Editor
DR. LOUIS H. BAUER (U. S. A.), Business Manager
Liaison Officers
DR. JEAN MAYSTRE, Switzerland
DR. P. GLORIEUX, Belgium
DR. V. A. FENGER, Denmark

The New Zealand Branch of the British Medical Association was elected to membership in the World Medical Association at the 10th General Assembly. This association was organized in 1896 and has approximately 810 members.

The following are among numerous resolutions adopted by the 10th General Assembly of the World Medical Association:

International Medical Law

"It is the primary function of the medical doctors of the world to formulate any code of International Medical Law and The World Medical Association is the only organization that can speak for the doctors of the world."

Traffic Accidents

"WHEREAS: The death and maiming of humanity throughout the world is increasing rapidly each year; and

"WHEREAS: It is the duty and responsibility of the medical profession in every country of the world to assist in the preservation and maintenance of human life;

"Therefore, be it resolved: That The World Medical Association recommend to its member associations that they cooperate with other agencies and authorities within their country to whatever degree is possible and necessary in a concentrated endeavor to save and preserve human life."

MEDICAL NEWS

ALABAMA

Public Health Physicians Needed.—According to the *Journal of the Medical Association of the State of Alabama,* a critical shortage of public health physicians exists in that state. Health officers are employed under three classifications, according to standards set by the state merit system: health officer 1, $500-$700 a month; health officer 2, $600-$800 a month; and health officer 3, $700-$900 a month. The applicant should be under 60 years of age, in good health, licensed or eligible for licensure to practice in Alabama, and a member or eligible for membership in a county medical society. Information may be obtained from the State Health Officer, 501 Dexter Ave., Montgomery 4.

Evacuation Hospital in Training.—The 109th Evacuation Hospital of Birmingham, Alabama National Guard, has returned from two weeks of training at Fort McClellan near Anniston. Under the command of Col. Samuel R. Terhune, the hospital gave medical support to the nondivisional units of the Alabama National Guard in training at Fort McClellan and concurrently conducted sectional training. The following section chiefs assisted: Lieut. Col. Jo R. Hood, Birmingham, chief of surgery; Lieut. Col. James G. Wood Jr., chief of x-ray; Lieut. Col. Howard F. Pringle Jr., D.D.S., Mobile, chief of dental section; Major John T. Strickland, Birmingham, chief of medicine: Major Thomas H. Williams Jr., Montgomery, urologist; captains Frederick H. DeVane and James C. Denton, Birmingham, orthopedic surgeons; and Capt. Daniel T. Meadows, D.D.S., Birmingham, dental surgeon.

CALIFORNIA

Cancer Mortality.—According to the Los Angeles County branch of the American Cancer Society, cancer claimed the lives of 7,381 men, women, and children in Los Angeles County in 1955, eight times as many deaths as the 952 fatalities from automobile accidents.

Proposed Stanford Medical Center.—Former President Herbert Hoover, honorary chairman of the Stanford Medical Center Fund, recently announced the establishment of the fund and its "first stage" objective, to raise $21,950,000 for development of a medical center on the university campus at Palo Alto. The goal includes 1 million dollars for improving the present Stanford University Hospital in San Francisco. For the new medical center a group of three-story buildings is projected, connected by open walkways on all levels and including a 215-bed teaching hospital, clinics, teaching facilities, and a library. The buildings, to be erected on a 40-acre campus site at a cost of $14,450,000, will comprise about 525,000 sq. ft. Endowment funds of $6,500,000 plus the 1 million dollars for remodeling of the present Stanford hospital, comprise the total stage-one goal of $21,950,000.

Funds already available total nearly 4 million dollars, including gifts and bequests of about 2 million dollars and over $500,000 from state and federal agencies to help construct a rehabilitation center unit. A grant of 1 million dollars from the Commonwealth Fund of New York is also included in the sum on hand, although it actually will not be received until matched by gifts from West Coast donors. A long-term stage-two fund-raising effort of equal magnitude, to be made following completion of stage one, will finance further development of the medical center program, build residences for its students, and provide it with adequate endowment.

On completion of the medical center's Palo Alto–Stanford hospitals, combined for economies in construction and joint operation, the city hospital will occupy one 226-bed wing of the building, while the other wing will comprise the Stanford teaching hospital. Additional teaching facilities will be afforded by the 1,000-bed Veterans Administration Hospital to be built on Stanford land. Scheduled for completion by 1959, the VA Hospital was planned at Stanford because of its future proximity to the medical center. A group of local physicians, dentists, and businessmen also have leased 10 acres of nearby Stanford land for construction of a 3 million dollar medical-dental office building, to be ready for occupancy by December, 1957.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

CONNECTICUT

Dr. Alice Hamilton Honored.—Dr. Alice Hamilton, aged 87, of Hadlyme, has been named "Medical Woman of the Year" by the Boston chapter, American Medical Women's Association. Dr. Hamilton, in 1910, directed the first comprehensive survey of occupational diseases (in Illinois) and in the following years was a leader in bringing the facts of industrial disease and the need for legislation to protect workers before both state and national governments. She served from 1911 to 1920 as a special investigator of poisonous diseases for the U. S. Department of Labor. Dr. Hamilton served as professor of pathology at Northwestern University Medical School in Chicago, as assistant professor of industrial hygiene at the Harvard Medical School, and as a lecturer at Tufts College Medical School, Boston. She is the author of books and scientific papers, including an autobiography, "Exploring the Dangerous Trades" (1943), and a text, "Industrial Toxicology," now in its second edition.

GEORGIA

Appoint Professor of Psychiatry.—Dr. Erasmus J. McCranie, who has served at Southwestern Medical School of the University of Texas, Dallas, as acting chairman of the department of psychiatry since 1953, has been named a professor in the department of psychiatry at the Medical College of Georgia, Augusta. While in Dallas, Dr. McCranie was also consultant to the Child Guidance Clinic and to the Veterans Administration Hospital, as well as attending psychiatrist at Parkland Hospital.

University News.—The Medical College of Georgia, Augusta, announces receipt of research grants from the U. S. Public Health Service, National Institutes of Health, Bethesda, Md., for the following projects:

Walter G. Rice, associate professor of pathology, (1) Origin, Fate and Nature of Myeloma Proteins; (2) Immunologic Specificity of Human Neoplasms.

Edwin C. Jungck, assistant clinical professor of endocrinology, Effect of "Less-Than-Suppressive" Doses of Testosterone on Testes of Infertile Men.

Chester H. Heuser, Ph.D., professor of microscopic anatomy, Morphological Survey of Early Human Embryos.

John M. Caldwell, professor of psychiatry, Improvement of the Undergraduate Teaching Program in Psychiatry, Including Personnel, Equipment, and Supplies.

Sam A. Singal, Ph.D., professor of biochemistry, Study on the Interrelationship of Phospholipid and Nucleic Acids in Metabolism.

Harland D. Wycoff, Ph.D., assistant professor of oncology and biochemistry, Cholesterol Ester Chemistry and Animal Metabolism.

ILLINOIS

Chicago

Meeting on Medical History.—The Society of Medical History of Chicago will hold an open meeting Dec. 19, at 8 p. m., at the Institute of Medicine (fourth floor, 86 E. Randolph St.). All are welcome. Dr. Aldo A. Luisada, associate professor of medicine, the Chicago Medical School, will discuss, "The Heart in History." Dr. George Halperin, Chicago, will have as his subject, "Theodore Billroth."

Appoint Assistant Dean.—Dr. John A. D. Cooper, associate professor of biochemistry, has been appointed assistant dean of Northwestern University Medical School, with which he has been affiliated since 1943. Dr. Cooper has conducted extensive research in physical biochemistry as applied to medical problems and has directed the medical school radioisotope unit since

1948. Dr. Cooper recently directed a course on radioisotope techniques in biology and medicine in Brazil and made a lecture tour of South American universities and scientific societies.

Personal.—Dr. Ralph H. Kuhns, formerly affiliated with the Veterans Administration District Office, Fort Snelling, Minn., has been appointed foreign language expert and psychiatrist for the Veterans Administration regional office in Chicago.——Dr. Jack Metcoff, Evanston, has been named chairman, department of pediatrics and director of pediatric research at Michael Reese Hospital Medical Center. Dr. Metcoff previously served in Boston as chief of the metabolic division of Children's Hospital and as assistant professor of pediatrics and consultant at Harvard Medical School.

MASSACHUSETTS

Personal.—Dr. Charles F. Wilinsky, Brookline, former executive director of the Beth Israel Hospital, Boston, received the 1956 Distinguished Service award of the American Hospital Association at its annual convention in Chicago. The award commends him for his early recognition of the need for coordinated activities between hospitals and health departments and his continued devotion to strengthening this relationship.

Harvard Laboratory Moved to Sweden.—The staff of an entire laboratory of Harvard Medical School and Boston Lying-In Hospital was transplanted to the Karolinska Institute Hospital, Stockholm, Sweden, for a four-month period starting Nov. 1. Under the direction of Claude A. Villee Jr., Ph.D., current studies on changes taking place in embryonic tissue will be expanded in association with the institute staff. Funds for the transportation of laboratory personnel and equipment were made available through the Association for the Aid of Crippled Children.

MINNESOTA

First O'Leary Memorial Lecture.—Dr. Henry E. Michelson, professor of medicine (dermatology) in the University of Minnesota Medical School, Minneapolis, delivered the first annual Paul A. O'Leary Memorial Lecture, "A Consideration of Some Diseases of the Subcutaneous Fat," in Mann Hall, Mayo Clinic, Sept. 8. Dr. O'Leary died on July 20, 1955.

University News.—The University of Minnesota announces the appointment of the following physician members of the Mayo Foundation faculty to full professorships in the graduate school of the university, of which the foundation is a part: Drs. Benjamin M. Black, surgery; Edward N. Cook, urology; Ward S. Fowler, physiology; Haddow M. Keith, pediatrics; and Eric E. Wollaeger, medicine. Appointed to associate professorships are Drs. Albert Faulconer, anesthesiology; George A. Hallenbeck, surgery; Paul R. Lipscomb, orthopedic surgery; Gordon M. Martin, physical medicine and rehabilitation; Donald R. Nichols and Lucian A. Smith, medicine; Charles A. Owen Jr., clinical pathology; and David G. Pugh, radiology. Promoted to assistant professorships are Drs. Donald S. Childs Jr., radiology; Edward C. Clark, Donald W. Mulder, and David de R. Daly, neurology; Henry W. Dodge Jr., neurosurgery; Franklin H. Ellis Jr., surgery; Donald J. Erickson, physical medicine; and Maurice H. Stauffer and William E. Wellman Jr., medicine.

MISSOURI

First Annual Westlake Lecture.—Guest speaker for the first annual Samuel B. Westlake Lecture at the Jewish Hospital medical center, St. Louis, was Dr. Victor Goodhill, clinical professor of surgery (otology) at the University of Southern California School of Medicine, Los Angeles. Dr. Goodhill's lecture on recent advances in the treatment of deafness was delivered Nov. 30. The Samuel B. Westlake Lectures were initiated in memory of Dr. Samuel B. Westlake, for many years an outstanding teacher and director of the department of otolaryngology at Jewish Hospital. They are being made possible by a fund established by Dr. Westlake's patients and friends, to assist in the development of teaching and research facilities at Jewish Hospital for the study of diseases of the ear, nose, and throat.

Personal.—An award for outstanding work in gerontology was presented recently to Dr. Edmund V. Cowdry of Washington University School of Medicine, St. Louis, at a meeting of the Gerontological Research Foundation in St. Louis.——Dr. John P. Wyatt, professor of pathology, St. Louis University School of Medicine, recently spent two months at Scotland Yard, London, as a guest investigator with the coroner system. Dr. Wyatt, who is chief coroner's pathologist for St. Louis County, conducts a training program in the department of pathology at the school of medicine in which graduate students receive instructions in medicolegal pathological investigations.——Dr. Sidney Goldring, Clayton, instructor in neurosurgery, Washington University School of Medicine, St. Louis, has been appointed director of the newly created department of neurosurgery at the Jewish Hospital of St. Louis.

NEW YORK

Dr. Gardner Goes to Yale.—Dr. Lytt I. Gardner, professor of pediatrics, State University of New York College of Medicine in Syracuse, has been appointed professor of pediatrics at the Yale University School of Medicine, New Haven, Conn. Dr. Gardner formerly was affiliated with the Massachusetts General Hospital, Boston; the University of North Carolina School of Medicine, Chapel Hill; and Johns Hopkins University School of Medicine, Baltimore.

Psychiatric Training Program.—The Albany Medical College of Union University, having received grants totaling $22,098 from the U. S. Public Health Service for postgraduate teaching and training of psychiatrists, plans to increase the number of its resident psychiatric trainees from five to eight. A $10,000 increase in the yearly contribution of the Public Health Service to the support of the medical college's undergraduate teaching program in psychiatry will enable the psychiatric department to have one additional instructor and will also benefit residents in psychiatry at the Albany Veterans Administration Hospital, since their third year of training is spent at Albany Medical College.

New York City

Personal.—King Gustaf of Sweden, through the Consul General Erik Kronvall, recently decorated Dr. Harry C. W. S. DeBrun as Knight of Nordstjernan (North Polar Star).

Tumor Clinic Conference.—Dr. Oscar Auerbach, chief, laboratory service, Veterans Administration Hospital, East Orange, N. J., will present "Changes in the Bronchial Epithelium in Its Relationship to Smoking and Cancer of the Lung" at the Harlem Hospital, Dec. 19, 10:45 a. m.

Lecture by Dr. Pasteur Vallery-Radot.—Dr. Pasteur Vallery-Radot, professor of clinical medicine, Faculty of Medicine, University of Paris, France, will deliver the Dr. I. C. Rubin Lecture, "Allergic Manifestations of Interest to the Gynecologist," at 8:30 p. m., Dec. 19, at the Mount Sinai Hospital.

Dr. Hunt Goes to Utah.—Dr. Carlton C. Hunt Jr., professor of physiology, Einstein University, has been appointed head, department of physiology, at the University of Utah College of Medicine, Salt Lake City. He succeeds Horace W. Davenport, Ph.D., who has assumed similar duties at the University of Michigan in Ann Arbor.

Director of Physiology-Pharmacology Department.—Dr. David Lehr, director, department of pharmacology, has been appointed director of the newly combined department of physiology and pharmacology at New York Medical College, Flower-Fifth Avenue Hospitals. Before coming to the college in 1941, Dr. Lehr was on the faculty at the University of Vienna Medical School in Austria, and at the Royal University of Lund in Sweden. Dr. Lehr recently presented a paper at the International Physiological Congress in Brussels on his research with experimental arteriosclerosis. He is chairman of the research committee of the New York Medical College–Metropolitan Medical Center; associate attending physician at Flower–Fifth Avenue Hospitals; and visiting physician at Metropolitan and Bird S. Coler hospitals.

NORTH CAROLINA

Psychiatric Center.—The University of North Carolina School of Medicine, Chapel Hill, announces that an estimated $300,000 building program for the Psychiatric Center of North Carolina Memorial Hospital is scheduled to begin late this year. According to Dr. Robert R. Cadmus, director of the hospital, 50% of the funds required for the project will be supplied by the federal government through the North Carolina Medical Care Commission and the remainder by the state. Plans for the center include laboratories, offices, treatment rooms for the outpatient department, and an auditorium.

University News.—Dr. Walter R. Benson, formerly assistant professor of pathology, University of Louisville (Ky.) School of Medicine, has been appointed to the same post at the University of North Carolina School of Medicine, Chapel Hill.——Dr. Sydenham B. Alexander, clinical assistant professor of medicine, University of North Carolina School of Medicine, Chapel Hill, has been named assistant administrator of the division of health affairs of the University of North Carolina. During World War II, Dr. Alexander was on destroyer duty in the Pacific and during the Korean emergency was chief of diagnostic services of the U. S. Naval Hospital in Portsmouth, Va.

OHIO

Fellowship in Aviation Medicine.—The Air Line Pilots Association, with headquarters in Chicago, has established a $7,200 fellowship in aviation medicine at Ohio State University, Columbus, said to be the first civilian institution to offer graduate training in this specialty. The grant will provide for two years of graduate study.

PENNSYLVANIA

Memorial to Dr. Flick.—Leadership by the late Dr. Lawrence F. Flick in the fight against tuberculosis was honored at a "Dr. Flick Day" program at Carrolltown, Aug. 11, one day after the 100th anniversary of his birth there. A memorial was unveiled, showing a likeness of the medical pioneer with a list of his accomplishments. The bas-relief is flanked by the double-barred cross shown on the Christmas seal. The principal speakers were Dr. Otis L. Anderson, assistant surgeon general, Public Health Service; Dr. Berwyn F. Mattison, Harrisburg, Pennsylvania secretary of health; and Dr. Julius L. Wilson, director, Henry Phipps Institute, Philadelphia. Dr. Flick founded the Pennsylvania Society for the Prevention of Tuberculosis, now the Pennsylvania Tuberculosis and Health Society; was prominent in establishing the Rush Hospital for Consumption and Allied Diseases in Philadelphia; organized the Free Hospital for Poor Consumptives; and helped to establish the Henry Phipps Institute and the National Association for the Study and Prevention of Tuberculosis, now the National Tuberculosis Association. A message from President Eisenhower, accepted by Dr. Lawrence F. X. Flick III, grandson of the late Dr. Flick, read in part: "Largely through the pioneering efforts and dynamic leadership of Dr. Flick, the national movement to combat tuberculosis was initiated. He fought to arouse public interest and organize a crusade against a disease that for centuries has been a plague of mankind."

Philadelphia

Hospital News.—The city-owned Philadelphia General Hospital is featured in a 24-page article in the July issue of *Resident Physician* magazine. The article is the ninth in a series on major medical centers of the United States.

Appointed Professor of Ophthalmology.—Dr. John S. McGavic, who recently resigned as pathologist and chief of laboratories at the Wills Eye Hospital, has been appointed professor of ophthalmology, Temple University Medical Center, where he served as professor of clinical ophthalmology from 1947 to 1950. He was formerly professor of clinical ophthalmology at the University of Pennsylvania Graduate School of Medicine, chief, ophthalmology service, Pennsylvania Hospital, and assistant ophthalmologist at the Memorial Hospital for Cancer and Allied Diseases in New York City. He is in charge of the ophthalmology service at Bryn Mawr Hospital.

Pittsburgh

Mellon Institute Appoints Research Director.—Paul J. Flory, Ph.D., professor of chemistry and acting chairman, department of chemistry, Cornell University, Ithaca, N. Y., was recently chosen by the Mellon Institute of Industrial Research as executive director of research.

UTAH

University News.—The University of Utah College of Medicine, Salt Lake City, announces that Dr. Maxwell M. Wintrobe, head, department of internal medicine, was recently given a three-months' leave of absence in the Far East on a Fulbright Lectureship with headquarters in India.——Norman Weissman, Ph.D., formerly of the State University of New York College of Medicine, recently became associate professor of pathology, and Dr. Julien L. VanLancker, from Louvain, Belgium, was named assistant professor of pathology.——Dr. Erik L. Noach, associate professor of pharmacology, State University of Leiden, Holland, is spending a research fellowship year in the department of pharmacology.——Dr. Yoshitoshi Kasé, assistant professor, department of chemicopharmacology, faculty of pharmacy, University of Kumamoto, Japan, is spending a research fellowship year in the department of pharmacology, working on central respiratory mechanisms.

GENERAL

Award to Dr. Elvehjem.—Conrad A. Elvehjem, Ph.D., dean, graduate school, University of Wisconsin, Madison, was recently named the 1956 recipient of the Charles F. Spencer award of the Kansas City section, American Chemical Society. The award includes a medallion and a $500 honorarium. Dr. Elvehjem, who with his co-workers showed that nicotinic acid was the specific antipellagra vitamin, is a member of the A. M. A. Council on Foods and Nutrition.

Gordon Research Anniversary Dinner.—A dinner to mark the silver anniversary of the founding of the Gordon Research Conferences of the American Association for the Advancement of Science will be held at the Hotel Commodore, New York City, Dec. 27, during the annual meeting of the association. The principal speaker will be Nobel prize winner Glenn T. Seaborg, Ph.D., whose topic will be "The Future Through Science." Reservations, at $10 per person, may be made by writing to W. George Parks, Ph.D., Director, Gordon Research Conferences, University of Rhode Island, Kingston.

Awards for Handicapped Service.—According to the International Society for the Welfare of Cripples and the Albert and Mary Lasker Foundation, three Albert Lasker awards for outstanding achievement in the development of services for the physically disabled will be presented at the seventh World Congress of the society in London, July 24, 1957. The awards, made by the foundation through the society every third year for internationally significant individual and group accomplishments, consist of $1,000 each and a silver statuette of the Winged Victory of Samothrace. Dr. Henry H. Kessler, West Orange, N. J., will be chairman of the Lasker awards committee.

Meeting on Premedical Education.—A symposium, "Problems in Premedical Education," will be presented in the auditorium of Cornell University Medical College, New York, Dec. 29, by Alpha Epsilon Delta fraternity, with the co-sponsorship of the American Association for the Advancement of Science section C-chemistry, F-zoological sciences, N-medical sciences, and Beta Beta Beta Biological Society, and in conjunction with the annual meeting of the American Association for the Advancement of Science. All persons interested in premedical education are invited to attend. Physicians participating in the program will include William N. Hubbard Jr., Lawrence W. Hanlon, E. Hugh Luckey, New York City; and George E. Miller Jr., Buffalo.

Discontinue Shipping Medical Books to Korea.—The American-Korean Foundation and the U. S. Army Medical Service have announced the discontinuation of their joint project of shipping medical books contributed by individual physicians, medical schools, hospitals, and state and local medical societies to Korea.

Books should not be sent to the Sharpe General Depot as in the past, because facilities no longer exist for packing and transshipping contributions to Korea. In making the announcement, Dr. Howard A. Rusk, chairman, American-Korean Foundation said, "The response of physicians and medical groups throughout the country for our appeal for books for Korean medical schools has been so generous that further contributions are not needed." As a result of this program, Dr. Rusk stated, over 76 tons (valued at $75,000) of medical texts, references, and periodicals have been shipped to Korea for distribution to Korean medical schools.

International Medical Film Program.—The international medical film program, a new feature for the A. M. A. Annual Meeting in New York City next June, is creating interest abroad. The many applications now coming in indicate an extensive program of medical films made in other countries. The aim of the program is to bring before the doctors who attend the New York meeting outstanding motion pictures produced abroad dealing with many aspects of medical science. This feature is in support of the people-to-people program that President Eisenhower launched this summer and in which the medicine and health professions are cooperating under the chairmanship of Dr. Louis H. Bauer, secretary general of the World Medical Association, New York. Although the film program is not competitive, a certificate of participation will be awarded to each film of distinction selected for showing. In connection with this program, which will be held at the Barbizon Plaza Hotel in New York next June 3-7, a discussion is planned on the problems of a freer international medical film exchange. Representatives of all countries interested in dissemination of medical knowledge by the film medium are invited. Special social events will also provide an opportunity for the participants to meet informally and discuss problems of mutual interest. The film program will be scheduled to permit participants to visit scientific exhibits and other programs, including color television, as guests of the A. M. A. Applications and information may be obtained from the American Medical Association, Motion Pictures and Medical Television, 535 N. Dearborn St., Chicago 10.

Lalor Faculty Awards.—The Lalor Foundation announces the availability of 40 awards to college and university staff and faculty members for research in the biological sciences for the summer of 1957. The awards for advanced study and research employing chemistry or physics to attack problems in any field of biology may be carried on at any institution of the awardholder's choice. The upper age limit for appointment is 40 years. The awards will usually not exceed $900 for a single man or woman, $1,100 for a married person working at his home institution, and $1,250 for a married person whose principal program is at another institution. Transportation and other expenses are for the account of the award holder. Inquiries should be addressed to the Director of the Lalor Foundation, 4400 Lancaster Pike, Wilmington 5, Del. The final date for the receipt of completed applications is Jan. 14, 1957.

FOREIGN

Residency Posts for Doctors from India.—The Indian Medical Association requests offers from recognized U. S. hospitals for residency and internship posts in all specialties for doctors from India, men and women with a good command of spoken and written English, specially selected for graduate training in U. S. hospitals for the session commencing July, 1957. The hospitals must be approved by the U. S. State Department for the exchange-visitor program. Interested hospitals are requested to communicate direct by air mail to the Honorary Secretary, Indian Medical Association, "Hanging Bridge," Daryaganj, Delhi, 7, India, giving offers of posts and the terms of appointment, including maintenance, stipend, and the allotted number for the exchange-visitor program.

Congress on Occupational Health.—The 12th International Congress on Occupational Health will convene July 1-6, 1957, in Helsinki, Finland, to discuss industrial noise, evaluation of invalidity, industrial hygiene norms, and cardiacs and work. Persons who wish to present original scientific papers on these or on any other topics are invited to notify the organizing committee before March 1, 1957, giving the title of the paper and a summary of not more than 200 words in English and French. The Nicolò Castellino prize, 3 million lire (approximately $4,800), will be awarded for the first time at the congress for the most outstanding investigation in the field of occupational health by a research worker, who must be under the age of 35 years and who is not the holder of a university chair. Details can be obtained from Directors of Nicolò Castellino Prize. The University, Naples, Italy. The congress will also have a competition for films concerned with occupational medicine and hygiene (accident prevention films do not qualify for the competition). There will be two classes, one for research and documentary films and the other for popular films for lay audiences. Films may be 16 or 35 mm., in color or black and white, with or without sound track, and must not exceed 20 minutes. Films must be received no later than May 15, 1957, by the Organizing Committee of the Congress at Työterveyslaitos, Haartmaninkatu 1, Helsinki-Töölö. Entries must state by whom the film has been planned, produced, and financed. Information relating to the congress may be had on application to the Organizing Committee, Chairman Dr. Leo Noro and Secretary General Dr. Pentti Sumari.

EXAMINATIONS AND LICENSURE

AMERICAN BOARD OF ANESTHESIOLOGY: *Part I.* Various locations, July 19. Final date for filing application is Jan. 19. *Oral.* Asheville, No. Car., Mar. 24-29. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF DERMATOLOGY: *Written.* Several cities, June 27. *Oral.* Baltimore, Oct. 11-13. Sec., Dr. Beatrice Maher Kesten, One Haven Ave., New York 32.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Oct. 21. *Oral.* New Orleans, Feb. 4-8; Boston, April 3-6. Final date for filing application is Jan. 2. Chicago, May 27-29; San Francisco or Los Angeles, September. Final date for filing application is Feb. 1. *Subspecialties. Gastroenterology.* Philadelphia, April 5-6. Final date for filing application is March 1. Exec. Sec., Dr. W. A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Examination given twice annually, in the spring and fall. In order to be eligible a candidate must have his application filed at least six months before the examination time. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part I.* Various cities of the United States, Canada, and military centers outside the Continental United States, Feb. 1. Candidates must submit case reports to the office of the Secretary within thirty days of being notified of their eligibility to Part I. The cases must be prepared in the manner described in the Bulletin of the board with a duplicate index list. *Part II.* Chicago, May 16-25. Request for reexamination in Part II must be received prior to Feb. 1. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6, Ohio.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Jan. 21. Final date for filing application was July 1. *Oral.* New York, May 23-27; Chicago, Oct. 7-11. Sec., Dr. Merrill J. King, Box 236, Cape Cottage Branch, Portland 9, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral. Part II.* Chicago, January 1957. Final date for filing application was Aug. 15. Sec., Dr. Sam W. Banks, 116 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 7-11. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Oral and Written. Pathologic Anatomy and Clinical Pathology.* Washington, April 4-6. Final date for filing application is March 1. Sec., Dr. Edward B. Smith, 1040 West Michigan St., Indianapolis 5.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* New York City, June 8-9. Final date for filing application is March 1. Sec., Dr. Earl C. Elkins, 200 First St., S.W., Rochester, Minn.

AMERICAN BOARD OF PLASTIC SURGERY: *Entire Examination.* Philadelphia, May 4-6. Final date for filing case reports is Jan. 1. Corres. Sec., Mrs. Estelle E. Hillerich, 4647 Pershing Ave., St. Louis 8.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Oral and Written. Public Health.* Schools of Public Health, April 11-13. *Aviation Medicine.* Denver, May 9-11. *Occupational Medicine.* St. Louis, April 26-28. Sec., Dr. Thomas F. Whayne, 615 North Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY: *Oral and Written. Parts I and II.* September. Sec., Dr. Stuart T. Ross, 520 Franklin Ave., Garden City, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* New Orleans, Mar. 18-19. Final date for filing application was Sept. 10. Sec., Dr. David A. Boyd, Jr., 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: Tampa, April 1-6. Final date for filing application is Jan. 1. Washington, Sept. 23-28. Final date for filing application is June 1. Sec., Dr. B. R. Kirklin, Kahler Hotel Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part II.* Los Angeles, Jan. 14-15; San Francisco, Jan. 17-18; Houston, Feb. 18-19; Nashville, Mar. 11-12; Boston, April 8-9, and New York, June 10-11.

AMERICAN BOARD OF UROLOGY: February 1957. Sec., Dr. William Niles Wishard, 1711 N. Capital Ave., Indianapolis 7.

BOARD OF THORACIC SURGERY: *Written.* Various centers throughout the country, February 1957, and the closing date for registration is Dec. 1, 1956. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit 2.

GOVERNMENT SERVICES

ATOMIC ENERGY COMMISSION

Dr. Bruner Appointed to AEC.—Dr. Harry D. Bruner has been appointed chief of the medical branch of the division of biology and medicine, Atomic Energy Commission, succeeding Dr. Roy E. Albert, who has accepted a research and academic appointment at George Washington University, Washington, D.C.

Dr. Bruner received an M.D. from the University of Louisville, Ky., and a Ph.D. in physiology from the University of Chicago. He was chairman of the pharmacology department at the University of North Carolina from 1947 until 1949, when he became chief scientist, medical division, Oak Ridge Institute of Nuclear Studies in Tennessee, serving until 1952, when he was appointed chairman of the department of physiology at Emory University, Ga.

As chief of the medical branch, Dr. Bruner will be responsible for administering the commission's medical program, including research on the mechanism, diagnosis, and treatment of radiation injury and the application of radioisotopes to the diagnosis and treatment of disease; research on toxicity of chemical compounds used in the atomic energy program; and the training of industrial physicians.

ARMY

Proposed Ionizing Radiation Center.—The proposed U. S. Army Ionizing Radiation Center will be located at the Sharpe General Depot, Stockton, Calif. The experimental center will include a nuclear reactor, built by the Atomic Energy Commission, which, together with related equipment, will cost about $3 million dollars. The reactor will be a source of intense gamma radiation.

The center will investigate the use of ionizing radiation in the preservation of foods and conduct other projects of interest to the Department of Defense. The processing area will be designed so that a large variety of products may be handled and major modifications in processing lines may be effected. The Quartermaster Research and Development Command at Natick, Mass., will direct the operations of the center.

The Quartermaster Food and Container Institute, Chicago, is conducting the over-all Quartermaster Corps research and development program in the field of radiation preservation of food. This program includes contracts with 16 universities and with research institutes and industrial concerns throughout the country. The food processed through the Army Ionization Radiation Center will be used in part for support of these contracts. It is expected that work will commence during this fiscal year and that the center will be in operation late in 1958.

NAVY

Reserve Officers Transfer to Regular Navy.—The following naval reserve medical officers have recently been commissioned in the Medical Corps of the regular Navy: Commander D. L. Custis, lieutenants J. D. Manhart, J. L. Glass, J. L. Reeder, T. R. Kleh, F. R. Walton, R. D. Cordier, C. E. Carlton Jr., F. M. Wolfe, R. E. Donahue, V. H. Fitchett, J. R. Williams, M. F. Sokoloff, C J. Philbrick, E. H. Lanphier, C. J. McGrew Jr., J. D. Gross, J. W. Bickerstaff Jr., E B. McMahon, E. P. Ellis Jr., T. S. Dunn Jr., Robert A. Smith, Samuel O. Cornwell, John H. Mazur, John F. Heath, H. R. Schumacher, David E. Cowan, and Erwin L. Burker, and Lieut. Commander R. D. Workman.

Dr. Selye's Address at Navy Hospital.—Dr. Hans Selye, director, Institute of Experimental Medicine and Surgery at Canada's Université de Montreal, addressed the staff of the U. S. Naval Hospital, Corona, Calif., Nov. 13. Also attending the lecture were students and faculty members of the University of California interested in Dr. Selye's work on stress.

Personal.—Dr. Howard T. Karsner, medical research advisor to the surgeon general of the Navy, has been elected a member of the New York Academy of Sciences.

Navy Crew Commended.—Hospital corpsmen and nonmedical personnel of the USS Salem were commended by the commanding officer for excellent performance of duty in handling the injured personnel of the USS John R. Pierce when on Oct. 1, 1956, a 5-in. gun-mount exploded aboard the destroyer, injuring 13 of its crew members. The Pierce transferred the injured men via high line to the Salem, whose medical personnel and other crew members cared for them and further transferred them to a nearby airfield for evacuation to a naval hospital. The acting surgeon general, Rear Adm. Bruce E. Bradley, added his congratulations to the men who performed their duty so outstandingly.

Captain Poos Awarded Gorgas Medal.—For contributions in preventive medicine while officer-in-charge, U. S. Navy preventive medicine unit no. 6, Hawaii, Capt. Robert S. Poos, Medical Corps, retired, received the Gorgas medal at the annual meeting of the Association of Military Surgeons in Washington, D. C., in November. Dr. Poos was selected for the award for his work relative to poliomyelitis among naval personnel and their dependents in Hawaii and to the use of Salk poliomyelitis vaccine under epidemic conditions. Dr. Poos, a native of Missouri, and Mrs. Poos reside at Claremont, Calif.

Guam Hospital Staff Commended.—At the recent third special session of the Guam Legislature, the medical department staff of the U. S. Naval Hospital on Guam were commended for their extraordinary services in furnishing supplementary medical care and consultations to the people of Guam at their Memorial Hospital. Capt. Frank P. Kreuz, M. C., U. S. Navy, is commanding officer of the Naval Hospital at Guam.

Medal Awarded to Navy Doctors.—The Association of Military Surgeons at their annual convention in November in Washington, D. C., awarded the Founders medal for 1956 to Capt. Eugene V. Jobe, M. C., U. S. Navy, and Capt. Walton L. Jones, M. C., U. S. Navy. The Founder's medal is given for outstanding contribution to military medicine and meritorious service to the association. Captains Jobe and Jones are on duty in Washington, D. C., at the Navy's bureau of medicine and surgery.

AIR FORCE

New Air Force Medical Officers.—The U. S. Air Force Medical Service announced that the following 24 physicians were tendered regular appointments in the Air Force about Oct. 1, 1956: Albert S. Anderson, Dewey J. Bailey Jr., Laurence T. Beahan, Edwin A. Bowman, Kenneth P. Carlson, Gerald Davis, Robert M. Dean, William A. Dunnagan, James A. Gorman Jr., Jere D. Guin, John B. Longenhagen, Strother B. Marshall, James W. Mason, Donald E. McNealy, Francis C. Null Jr., John R. Pfrommer, Eldred T. Richey Jr., William W. Rueve, James J. Schubert, Kuno C. Schwarz, W. T. Snodgrass, Dennis J. Sullivan, Charles O. Titus, and Hiroshi Yamauchi.

Personal.—Brig. Gen. Victor A. Byrnes, director, professional services, office of the surgeon general, U. S. Air Force, delivered the Mc Reynolds Memorial Lecture on "Eye Injuries Produced by Atomic Explosion" at the University of Texas, Oct. 31.

VETERANS ADMINISTRATION

New Clinical Investigator Program.—The Veterans Administration, Washington, D. C., has made the following announcement:

The needs of the Veterans Administration medical program and the potential of its research and education activities in contributing to the nation's health are such that the VA plans to train selected physicians and dentists whose primary responsibility will be medical research. The candidates must be interested in problems of importance in the care of veteran patients in fields basic to neurology and psychiatry, cardiovascular disease, cancer, degenerative diseases, and problems involving the aging process. Maximum freedom of choice of subject will be allowed within these broad fields. Any physician or dentist is eligible who has completed at least the formal residency training period required prior to American specialty board certification and who because of special interest and aptitude wishes to do full-time research for a period of possibly up to three years.

The clinical investigator will spend at least three-fourths of his time in research. The balance of his time may be spent in teaching and patient care or in whatever professional activity he and his sponsors agree is advantageous for his development. He will be appointed as a full-time member of the Veterans Administration hospital staff, and his official title will be Veterans Administration clinical investigator. He will be entitled to the privileges and benefits of other full-time physicians and dentists, such as insurance and retirement eligibility and annual and sick leave. All clinical investigators will have research as their primary responsibility; they will, in addition, hold suitable clinical appointments on the hospital staff that will enable them to enjoy the privileges of a responsible relation to the patient care program. The clinical investigator will be appointed at intermediate grade. The beginning salary is $8,990 per year. Additional credit will be given for American specialty board certification in accordance with existing regulations.

Candidates are nominated to the VA hospital manager through the VA hospital research committee for approval by the deans committee. From the group of nominees the clinical investigators will be selected by the central advisory committee composed of outstanding educators and investigators. The candidate should submit a *curriculum vitae,* including transcripts of his scholastic record and other information that might help the committee in its evaluation. He should prepare a detailed description of his proposed research program and make a brief statement of his future plans and ambitions. The candidate should select a preceptor who will follow his career throughout the period of appointment. The preceptor may be any person approved by the deans committee, within or without the Veterans Administration. The sponsoring hospital will describe the research and other facilities available for use by the investigator. Additional information and assistance in completing the application should be secured from the deans committee or hospital manager. In making the final selection the central advisory committee will consider not only the qualifications of the candidate but the ability of the hospital to provide an atmosphere conducive to his development.

Selection will be made semiannually for January and July appointment. Applications may be obtained from the manager of the VA hospital of choice. The completed forms are submitted by the deans committee to the Office of the Assistant Chief Medical Director for Research and Education, Veterans Administration, Washington 25, D. C. The candidates will be notified of their selection by the chief medical director through the hospital manager.

Awards to Employees at Fort Lyon Psychiatric Hospital.—The employees of the VA hospital at Fort Lyon, Colo., received an award of $4,360 presented by Dr. William S. Middleton, VA chief medical director, in a ceremony at the hospital on Nov. 12. Each of the 436 employees of the hospital who were on duty six months or more as of May 2 received $10 and a certificate of commendation for superior performance and teamwork. Dr. Middleton said that the Fort Lyon Hospital had received the Achievement Award of the Year from the American Psychiatric Association for showing the most improvement in patient care of any hospital in the United States during 1955. The VA's award demonstrates, it was said, that modern psychiatric care can be made available at an isolated station operating with a limited but devoted medical staff. Dr. Howard P. Morgan is the hospital manager.

Fort Lyon, a 781-bed hospital specializing in the care of mentally ill veterans, is located on the site of an old frontier post, later a military fort. The Navy established a tuberculosis hospital there in 1906 and the VA took it over in 1922.

Hospital News.—Dr. Alvin Turken, Tarrytown, N. Y., addressed the staff of the Veterans Administration Hospital at Northport, L. I., Oct. 30, on "Application of Orthopedic Measures in Neuro-Psychiatric Problems."

PUBLIC HEALTH SERVICE

New Program to Increase Research Manpower.—The Public Health Service announced Nov. 20 five-year research fellowship awards to 44 scientists in 29 universities and medical schools in 20 states, the District of Columbia, and Canada. The awards are the first in a new federal program designed to increase manpower for research in the basic medical sciences. Recipients are scientists who have completed their doctor's degrees in biochemistry, pharmacology, physiology, microbiology, pathology, and the psychological sciences. Each fellow will receive a salary not to exceed $10,000 yearly, plus up to $2,000 to defray part of the expenses of his research. The salary level is set by the institution to approximate the salaries of scientists doing similar research and teaching as members of the regular faculty. These fellowships will permit recipients to continue their research activities. Concurrently, the sponsoring institutions will assign appropriate teaching responsibilities so that fellows may qualify for full-time academic positions at higher levels.

The new program results from over two years of study by the Public Health Service, aided by experts and the advice of medical school deans and heads of university departments concerned with research and teaching in the basic medical sciences. In citing the need for senior fellowships, the surgeon general said a survey revealed that for the current year over 200 authorized and budgeted positions on the faculties of medical and basic science schools are unfilled. Included are 55 professorships, 52 associate professorships, and 79 assistant professorships. He added that about the same number of vacancies existed last year.

The Public Health Service will award between 40 and 50 new fellowships annually until about 250 have been given by the fifth year. Thereafter the program will be maintained at this level until the national deficiencies have been met. The total cost of the first year of the program will be about $500,000.

Aid to Build Sewage Treatment Works.—The Public Health Service is ready to act on applications for federal grants to help build sewage treatment facilities, and criteria for determining the propriety of federal aid have been established.

Congress appropriated 50 million dollars for the new construction-grants program during the current fiscal year. The new act limits individual grants to 250 thousand dollars or 30% of the estimated cost of the project, whichever is less. Among other conditions, to be eligible for a federal grant a project must be part of a comprehensive water pollution control program developed cooperatively by the Public Health Service, other federal agencies, state and interstate agencies, municipalities, and industries. The program list now includes about 10,000 municipalities. In addition, eligible projects must be in conformity with the state water pollution control plan and must have been certified by the state water pollution control agency as entitled to priority over the other eligible projects on the basis of financial as well as water pollution control needs.

Annual Survey of Illness.—Forrest E. Linder, Ph.D., has been named director of a new Public Health Service program to survey the nature and extent of illness and disability in the population each year. The survey, authorized by the past Congress, also will include data on medical services received by the ill and disabled. The last previous federal survey of this type was in 1936. The Public Health Service plans to use scientific door-to-door sampling techniques to obtain accurate information on the amount, distribution, and effects of illness and disability, and the services received because of such conditions.

Dr. Linder, a native of Waltham, Mass., comes to the Public Health Service from the United Nations statistical office. He received his doctor of philosophy degree from the State University of Iowa. Prior to his work with the United Nations, he was deputy chief of the National Office of Vital Statistics of the Public Health Service.

Personal.—Dr. Donald W. Patrick, director, Clinical Center of the National Institutes of Health, at Bethesda, Md., has been appointed medical officer in charge of the Public Health Service Hospital at San Francisco, succeeding Dr. Kenneth R. Nelson, who is being transferred to Washington, D. C., to be associate chief of the Bureau of Medical Services.——Dr. Edgar B. Johnwick has been appointed medical officer in charge of the U. S. Public Health Service Hospital (National Leprosarium), Carville, La., succeeding Dr. Eddie M. Gordon Jr., newly appointed chief quarantine officer at Fort Monroe, Va., in charge of foreign quarantine activities in the Norfolk and Hampton Roads area. The Public Health Service at Carville, La., is the only institution in the continental United States devoted exclusively to the treatment and rehabilitation of persons with leprosy.

DEATHS

Osgood, Robert Bayley ⊕ Boston; born in Salem, Mass., July 6, 1873; Harvard Medical School, Boston, 1899; John B. and Buckminster Brown professor of orthopedic surgery emeritus at his alma mater; specialist certified by the American Board of Orthopaedic Surgery; past-president of the American Orthopaedic Association and the New England Surgical Society; member of the American Academy of Orthopaedic Surgeons, American Academy of Arts and Sciences, International Society of Orthopaedic Surgery, and the Boston Surgical Society; corresponding member of the Belgian Orthopaedic Association and the Australian Orthopaedic Association; honorary member of the British Orthopaedic Association, Italian Orthopaedic Association, and the Scandinavian Orthopaedic Association; fellow of the American College of Surgeons; veteran of World War I; honorary surgeon and formerly chief of staff, orthopedic service, Massachusetts General Hospital; consultant at the Children's Hospital, where he was formerly chief of staff, orthopedic service; died Oct. 2, aged 83.

Behan, Richard Joseph ⊕ Pittsburgh; born in Pittsburgh June 1, 1879; Western Pennsylvania Medical College, Pittsburgh, 1902; served on the faculty of his alma mater; past-president of the Allegheny County Medical Society; member of the Pittsburgh Surgical Society; fellow of the International College of Surgeons and the American College of Surgeons, of which he was an exgovernor; served in the Red Cross during the Serbian-Bulgarian War in 1913 and in recognition of his services was decorated by King Peter of Serbia; veteran of World War I; author of several books; from 1915 to 1939 chest surgeon at the Leech Farm Sanatorium; from 1922 to 1938 on the staff of the Pittsburgh City Home and Hospitals in Mayview, Pa.; from 1939 to 1942 medical director of the Allegheny County Institution District Hospital in Woodville; on the staff of St. Joseph's Hospital and Dispensary, where he died Oct. 8, aged 77, of a cerebral accident.

Jones, Isaac Hampshur ⊕ Los Angeles; born Sept. 26, 1881; University of Pennsylvania Department of Medicine, Philadelphia, 1906; member of the Association of Military Surgeons of the United States, American Laryngological, Rhinological and Otological Society and the American Otological Society; past-president of the Pacific Coast Oto-Ophthalmological Society; specialist certified by the American Board of Otolaryngology; fellow of the Aero Medical Association; during World War I served on recruiting duty for the newly-created aviation section of the Signal Corps; served abroad, for which he was made a Chevalier of the French Legion of Honor; formerly on the faculty of the University of Southern California School of Medicine; served on the staffs of the Los Angeles County Hospital and the Hospital of the Good Samaritan; died Sept. 7, aged 74, of carcinoma of the parotid gland with metastases.

Miller, Felix Perryman ⊕ El Paso, Texas; born in Coryell Aug. 20, 1874; University of Texas School of Medicine, Galveston, 1899; formerly a pharmacist; specialist certified by the American Board of Surgery; member of the American College of Chest Physicians and the American Association for the Surgery of Trauma; fellow of the International College of Surgeons and the American College of Surgeons; member of the House of Delegates of the American Medical Association in 1930-1931 and from 1935 to 1939; past-president of the Medical Association of Texas and the El Paso County Medical Society; served on the county health board; on the staffs of the Southwestern General Hospital, Providence Memorial Hospital, and Hotel Dieu, Sisters' Hospital; consultant, William Beaumont Army and El Paso General hospitals; died Aug. 23, aged 82, of carcinoma of the liver.

Dobbie, Robert Paul ⊕ Buffalo; born in Buffalo in 1895; University of Buffalo School of Medicine, Buffalo, 1917; clinical professor of surgery at his alma mater; member of the American Association for the Surgery of Trauma and the Industrial Medical Association; fellow of the American College of Surgeons; member of the founders' group of the American Board of Surgery; past-president of the Buffalo Academy of Medicine and the Buffalo Surgical Society; for many years senior surgeon for the Republic Steel Corporation and the Donner-Hanna Coke Corporation; on the staff of the Buffalo General Hospital, where he was president of the medical staff and at one time secretary and treasurer; on the staffs of the Children's Hospital and the Edward J. Meyer Memorial Hospital; died in the Buffalo General Hospital Aug. 27, aged 60, of malignant hypertension.

Petty, Wallace Sidney ⊕ Macon, Mo.; born in Millport July 13, 1887; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1908; completed a course in public health at the University of Minnesota, Minneapolis, in 1941; specialist certified by the American Board of Preventive Medicine; past-president of the Iowa Public Health Association; in 1942 elected vice-president of the International Society of Medical Health Officers; veteran of World War I; served as director of the Woodbury County (Iowa) health unit and the Sioux City (Iowa) Health Department; formerly director of the divisions of local health services and communicable disease control, and state director of health, Nebraska Department of Health; district health officer for the Missouri State Department of Health; died Sept. 9, aged 69, of cerebral hemorrhage.

Wilson, David Alexander ⊕ Greenville, S. C.; born in East Liverpool, Ohio, Feb. 1, 1910; Ohio State University College of Medicine, Columbus, 1938; specialist certified by the American Board of Surgery; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; interned at the Duke Hospital in Durham, N. C., where he served a residency; formerly a resident at the Franklin County Sanatorium in Columbus, Ohio, and the Kent General Hospital in Dover, Del.; served as president of the South Carolina Surgical Society; on the staff of the Greenville General Hospital; member of the board of directors of the Greenville Chamber of Commerce; died Sept. 17, aged 46.

Teveluwe, William Anthony, Blanco, Texas; born in Cincinnati July 23, 1877; Cincinnati College of Medicine and Surgery, Cincinnati, 1898; past vice-president of the Hayes-Blanco Counties (Ohio) Medical Society; a draft board physician during World War II; formerly practiced in Cincinnati, where he was on the staffs of the St. Francis Hospital, Good Samaritan Hospital, and St. Mary's Hospital, where he was president of the staff in 1932; served as attending physician at Mount Alverno Home for Boys in Cincinnati; on the staff of the Hospital in the Hills, where he died Sept. 18, aged 79, of cancer of the sigmoid.

Artman, Byron E., Wichita, Kan.; Eclectic Medical Institute, Cincinnati, 1888; died Sept. 22, aged 90.

Brown, Elmer Jonathan ⊕ Manchester, N. H.; Medical School of Maine, Portland, 1910; member of the American Urological Association; for many years on the staff of the Elliot Hospital; died Oct. 6, aged 72, of cerebral hemorrhage.

Bundsen, Charles Albin ⊕ Denver; Gross Medical College, Denver, 1902; veteran of the Spanish-American War; member of the American College of Chest Physicians and the American Trudeau Society; formerly member of the state board of health; once decorated by the King of Sweden; for many years on the staff of the Mercy Hospital; founder and retired medical director of the Swedish National Sanatorium in Englewood, where he died Sept. 3, aged 83, of arteriosclerosis.

Conliffe, Milton Mitchinson, Fairmont, W. Va.; College of Physicians and Surgeons, Boston, 1914; an associate member of the American Medical Association; served on the staff of the Fairmount General Hospital; died in a New York hospital Oct. 1, aged 71.

Cox, Walter Edward ⊕ Brownsville, Texas; University of Arkansas School of Medicine, Little Rock, Ark., 1912; served as health unit director for the state health department; died Sept. 17, aged 78, of arteriosclerosis.

⊕ Indicates Member of the American Medical Association.

Dale, Joseph Wilbur ✠ Chesterton, Ind.; Chicago College of Medicine and Surgery, Chicago, 1910; past-president of the Porter County Medical Society; served on the staff of the Porter Memorial Hospital in Valparaiso; died in Westville Aug. 18, aged 68.

Dixon, Francis Samuel ✠ Natchez, Miss.; Tulane University School of Medicine, New Orleans, 1932; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; served as secretary of the Adams County Medical Society; consultant, Natchez Charity Hospital, where he was superintendent; on the staffs of the Natchez General Hospital and the Natchez Sanatorium, where he died Oct. 3, aged 55, of coronary thrombosis.

Fenn, Harry Todd, Mount Dora, Fla.; University of Alabama School of Medicine, Mobile, 1911; member of the Florida Medical Association; died in the Orange Memorial Hospital, Orlando, Oct. 6, aged 69, of cerebral thrombosis.

Fisher, Charles Thompson ✠ Salisbury, Md.; University of Maryland School of Medicine, Baltimore, 1901; fellow of the American College of Surgeons; past-president of the Wicomico County Medical Society; served on the staff of the Peninsula General Hospital, where he died Sept. 19, aged 77, of heart disease.

Gambacorta, Leopoldo ✠ Newark, N. J.; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1906; on the staff of the Columbus Hospital; died Aug. 23, aged 75, of cerebral hemorrhage.

Garvin, Edward Ralph, Toledo, Ohio; St. Louis University School of Medicine, St. Louis, 1931; veteran of World War II and received a Navy Commendation Ribbon and citation for "meritorious and efficient performance of duty"; on the staffs of the Mercy Hospital and St. Charles Hospital, where he was chief of obstetrics and gynecology and where he died Sept. 19, aged 50, of coronary occlusion with myocardial infarction.

Hackney, Ben Hall, Lucama, N. C.; Medical Department of Tulane University of Louisiana, New Orleans, 1911; died Oct. 2, aged 68, of coronary thrombosis.

Hanks, Ralf ✠ Fulton, Mo.; St. Louis University School of Medicine, St. Louis, 1926; member of the American Psychiatric Association; past-president of the Missouri Association for Mental Hygiene; interned at St. John's Hospital in St. Louis; formerly resident physician at the Missouri State Hospital No. 4 in Farmington; served as superintendent of state hospitals in St. Joseph, Nevada, and Fulton, where he died Sept. 24, aged 61, of cerebral hemorrhage.

Hannett, James Wallace ✠ Clyde, N. Y.; Syracuse University College of Medicine, Syracuse, 1908; member and past-president of the New Mexico Medical Society; fellow of the American College of Surgeons; for many years practiced in Albuquerque, N. Mex.; died Sept. 23, aged 74, of carcinoma of the left main bronchus.

Hansen, Roy Theodore ✠ Hartland, Wis.; Marquette University School of Medicine, Milwaukee, 1918; for many years practiced in Wauwatosa, where for many years he was health officer; served on the staffs of the Johnston Emergency and Mount Sinai hospitals in Milwaukee; died Aug. 21, aged 63, of cardiac decompensation and coronary thrombosis.

Harrell, Forrest Worth ✠ Jennings, La.; Tulane University School of Medicine, New Orleans, 1922; veteran of World Wars I and II; died Sept. 21, aged 58.

Harris, J. Monroe, Allsboro, Ala. (licensed in Alabama, year unknown); died Aug. 31, aged 88.

Jacobson, Jacob ✠ Chicago; Loyola University School of Medicine, Chicago, 1919; on the staffs of the Cook County Hospital and St. Joseph Hospital, where he died Oct. 17, aged 60, of acute myocardial infarction.

Jameson, Louis Blair ✠ Medford, N. J.; Syracuse University College of Medicine, Syracuse, 1909; died in Elizabeth Aug. 2, aged 70, of injuries received in an automobile accident.

Johnson, David Powell, Chicago; Rush Medical College, Chicago, 1902; died Sept. 30, aged 86.

Meuser, Courtland Burgett, Ashland, Ohio; Starling-Ohio Medical College, Columbus, 1912; member of the Ohio State Medical Association; died Sept. 12, aged 70, of yellow atrophy of the liver and infectious hepatitis.

Meyer, Julian Erdreich ✠ Columbus, Neb.; Jefferson Medical College of Philadelphia, 1917; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; newly installed president of the Nebraska Heart Association, of which he was a trustee from the time it was founded; on the staffs of the Lutheran Hospital and St. Mary Hospital; died Oct. 5, aged 62, of coronary occlusion.

Nadolny, Chester John, Cheektowaga, N. Y.; University of Buffalo School of Medicine, Buffalo, 1926; member of the Medical Society of the State of New York; served as health officer; on the staff of the Millard Fillmore Hospital in Buffalo, where he died Aug. 31, aged 54, of hemorrhage from ruptured esophageal varices and Laennec's cirrhosis.

Naugle, Johnson Edward ✠ Sterling, Colo.; University of Colorado School of Medicine, Denver, 1910; on the staffs of the Logan County and St. Benedict hospitals; died June 16, aged 71, of coronary disease.

Ober, Bert Frank ✠ Latrobe, Pa.; Medico-Chirurgical College of Philadelphia, 1906; for many years secretary-treasurer of the Latrobe Academy of Medicine; veteran of World War I; served as secretary of the staff of the Latrobe Hospital, where he died Sept. 27, aged 82, of congestive heart disease.

Quinn, Thomas, Napoleon, Ohio; Toledo Medical College, Toledo, 1909; died Sept. 2, aged 70.

Remley, Arthur Roscoe, Richmond, Mo.; St. Louis University School of Medicine, St. Louis, 1908; died Aug. 27, aged 75.

Sandholdt, John Peter, Moss Landing, Calif.; University of California School of Medicine, San Francisco, 1904; formerly practiced in Monterey, where he was city councilman and mayor; died in Monterey Sept. 24, aged 76, of intestinal obstruction.

Schiffbauer, Hans E. ✠ Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1907; associate clinical professor of surgery at the University of Southern California School of Medicine; member of the founders' group of the American Board of Surgery; fellow of the American College of Surgeons; served on the staffs of the California Hospital and the Los Angeles County Hospital; died Sept. 17, aged 73, of heart disease.

Sevenman, George William, San Mateo, Calif.; Cooper Medical College, San Francisco, 1894; an associate member of the American Medical Association; on the staff of the Mills Memorial Hospital; died Aug. 30, aged 82, of myocardial degeneration.

Vanzant, Frances Ralston, Houston, Texas; University of Texas School of Medicine, Galveston, 1926; member of the American Gastro-Enterological Association; fellow of the American College of Physicians; formerly secretary of the Harris County Medical Society; died in the Methodist Hospital Aug. 27, aged 54, of septicemia.

Vernon, Frank Atherton ✠ Pikeville, Ky.; Medical College of Georgia, Augusta, 1935; member of the Southeastern Surgical Congress; fellow of the American College of Surgeons; veteran of World War II; on the staff of the Methodist Hospital; died Sept. 9, aged 46, of injuries received in an automobile accident.

Vixie, Loren Oliver ✠ Monterey Park, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1944; died May 5, aged 38.

Wahle, Henry, Oakland, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, Chicago, 1897; an associate member of the American Medical Association; died in the Providence Hospital July 22, aged 86, of heart disease due to coronary sclerosis.

Walborn, Kenneth Boone ✠ Fort Worth, Texas; Baylor University College of Medicine, Dallas, 1937; member of the American Academy of General Practice; veteran of World War II; died Sept. 6, aged 45.

FOREIGN LETTERS

AUSTRIA

Reactions of the Infant in the Neonatal Period.—At the meeting of the Society for Pediatrics in Vienna on June 26, Dr. H. Lehndorf stated that a change in the functions of all organs in the newborn infant takes place in the first few days of life. The clinical manifestations that occur unnoticed and without disturbances of the state of health are called reactions of defense; those that occur with symptoms of sickness are called reactions of alarm. In the adaptation phase, hormonal crises are caused by the effort of the newborn infant to be freed from substances transmitted from the mother through the placenta. The most important phenomenon in this phase is the biological allergy of the newborn baby, characterized by such transitory manifestations as erythema, edema, hydrocele, fever, and intestinal disturbances. The hypothesis is proposed that the fetus, which in utero is sensitized by the heterogeneous serum of the mother, during delivery again comes into intimate contact with the maternal blood, thus making for a second injection. This will, after an appropriate interval, produce allergic reactions. The concept of a changed blood morphology in the period of adaptation leads to a better understanding of the phenomena associated with this period. This is shown in the process of erythropoiesis. The elimination of the macrocytes and the creation of a generation of normocytes means a daily change of 20 billion erythrocytes. In addition there is also the decreased value of pleocytosis. The physiological anemia of the newborn infant is regulated by a complicated mechanism, a disturbance of which by shock or allergy will intensify hemolysis and the temporary inhibition of hematopoiesis and will produce the condition of anemia neonatorum transitoria. A physiological neutropenia and rarely a pathological transitory granulocytopenia have been observed in the leukocytopoietic system. A physiological thrombopenia in the first week of life and melena neonatorum have also been observed.

AFRICA

Symposiums on Cancer.—At a symposium on hepatic cancer and related disorders held in August at Makerere College Medical School, Kampala, Uganda, evidence of the high incidence of primary hepatic cancer in native Africans was presented. The incidence varied in different locations, the regions about Dakar, French West Africa, and Lourenco Marques, Mozambique, showing the highest levels. The disease occurs chiefly in men between the ages of 20 and 40, and it runs a rapid course. The gross and microscopic types resemble those seen in Europe and America except that their proportions may be different. The causes are not apparent, but some form of hepatic cirrhosis is usually present in patients with this type of cancer. Although the geographical areas having a high incidence of hepatic cancer also have a high incidence of malnutrition, including cases of kwashiorkor, it was the consensus that the patient with kwashiorkor, who often has an enlarged fatty liver, does not usually have a cirrhotic liver later. Other possible etiological factors were liver parasites, viral hepatitis, and hepatotoxic agents in food or drink.

A symposium on cancer in the native African followed in September at the Louvanian University of Leopoldville in the Belgian Congo. The site distribution of primary cancers in native Africans appears to be different from that in natives of Asia, America, and Europe. Among the tumors that are more frequent in Africa are carcinomas of the salivary glands, liver, and skin (especially the skin of the legs in relation to tropical ulcers), multiple hemorrhagic hemangioma of Kaposi, and reticulum cell tumors. Gastric, pulmonary, and colonic cancers seem to be relatively less frequent. There is some geographical difference in the incidence of various cancers within Africa, and the distribution is different from that found in the American Negro. For example, the great frequency of multiple hemorrhagic hemangioma of Kaposi reported in Uganda and the Congo is not seen in the Senegal at Dakar or in the United States. The participants in the symposium recognized the rich opportunities for studying etiological factors in cancer in this African material and the need for additional data. They recommended that a center be established in Africa for the accumulation and study of this material. A third group of visits and meetings followed immediately at the School of Medicine at Dakar, French West Africa, and included a visit to Pasteur Institute and the Nutrition Study Center. The members of the symposiums from the United States were Drs. A. Cantarow (Philadelphia), H. F. Dorn (Bethesda, Md.), W. S. Hartroft (St. Louis), P. E. Steiner (Chicago), H. L. Steward (Bethesda), and A. Tannenbaum (Chicago).

The items in these letters are contributed by regular correspondents in the various foreign countries.

DENMARK

Treatment of Lupus Erythematosus.—The claims made for quinacrine in the treatment of lupus erythematosus encouraged Nielsen and Christiansen (*Ugeskrift for læger*, Sept. 6, 1956) to give it an extensive trial. They report that, in a series of 97 patients, the disease was of the discoid type in 81 and of the erythematous type in 16. Most of the patients were treated in the hospital to facilitate the observation of any side-effects of the drug, but 41 were treated as outpatients. Two 100-mg. tablets were given daily for eight days; then 300 mg. was given daily until the skin turned definitely yellow; and then 100 to 200 mg. was given daily for a prolonged period, the smallest total dose being 1.6 gm. and the largest being 49.8 gm. (average 18 gm.). Broadly speaking the results were excellent in 33% and fair in 33%. The results were much the same whether inpatient or outpatient treatment was given, and the patient's sex and the duration of the disease also seemed not to influence the reaction to this treatment, but the prognosis improved markedly with the patient's age, for among the 16 patients over the age of 60, only one failed to get a good result. During an observation period of 12 months after the completion of the treatment, the relapse rate was about 80%. Side-effects were also troublesome, with 5 cases of dermatitis, 16 of dyspepsia, and 8 of hyperhidrosis traceable to the treatment. Because side-effects are reported as being less troublesome with the related chloroquine, this drug was tried. It is hoped that small doses given over a prolonged period may reduce the relapse rate. Freedom from the yellow skin produced by quinacrine is a further advantage of chloroquine. At present quinacrine may be said to be as good as, but not much better than, other drugs hitherto given for lupus erythematosus.

Thrombosis of the Pulmonary Artery.—Dr. K. Iversen undertook a retrospective study of 20 patients in whom thrombosis of the pulmonary artery was found after death (*Nordisk medicin*, Sept. 6, 1956). Most of the patients were elderly and had a variety of cardiopulmonary complaints. The clinical records were therefore bound to present a complex picture from which instructive elements had to be disentangled. The records belonged to a series of about 4,000 autopsy reports, so the incidence of thrombosis of the pulmonary artery in this series was 0.5%. The average age of the patients was 69 years, and in several the thrombi were evidently of long standing. In every case there was a record of dyspnea; dyspnea on exertion was the first symptom noted in 15 patients. All but one had been cyanosed. In 11 there was a history of pulmonary embolism at some earlier date. Most had had prolonged fever refractory to chemotherapeutic and antibiotic agents. Ten had been mentally confused. In 9 the onset of the thrombosis was acute, suggesting pulmonary embolism, and in the remaining 11 it was insidious, manifesting itself as cyanosis and dyspnea. Iversen suggests that a comparison of radiograms taken from time to time in the same patient may give a clue to the correct diagnosis, but he admits that in eight cases clinical evidence on which to found the diagnosis of thrombosis of the pulmonary artery during life was lacking. In such cases the thrombosis may be a terminal phenomenon.

Cancer Register.—Dr. Johannes Clemmesen has described the main activities of the Danish Cancer Register since its foundation in 1942 (*Nordisk medicin*, Oct. 4, 1956). Its task was to collect on a voluntary basis reports on cancer cases from all the hospitals in Denmark and to correlate these reports with the country's death certificates. Cooperation has been assured with the University Genetics Institute in order to facilitate the investigations

conducted by the register into the influence of heredity on the development of cancer. It has found that heredity does have a certain but limited influence on the development of cancer of the breast. In cooperation with the State Serum Institute, at which a syphilitic register is kept, it was shown that the incidence of cancer of the cervix is abnormally high among prostitutes. The cancer register has also collected data showing that the incidence of carcinoma of the lungs is high in men in Copenhagen, where it was noted for the first time that the lung cancer rate rose as the social status fell. It is calculated that by 1990 the lung cancer rate for men in Copenhagen will be the same as that for all forms of cancer in 1950.

The Prognosis for Patients with Hypertension.—In 1946, Dr. Poul Bechgaard published a report on 1,038 patients with high blood pressure. Since then he has kept in touch with these patients. In *Nordisk medicin* for Sept. 9, 1956, he brought his observations up to date, with a follow-up period of 16 to 22 years. Using the crude death rate in Denmark as a base line (100%) and after excluding patients with renal disease and those who had some fatal disease, such as cancer, at the first examination, he found that the death rate was 238% for his male and 133% for his female patients. With the comparatively good prognosis for women, Bechgaard doubts if it is necessary to enforce strict measures on women with a systolic pressure under 200.

UNITED KINGDOM

Synthetic Detergents.—In 1953 the Minister of Housing and Local Government set up a committee to examine the effects of the increasing use of synthetic detergents. In its report, now published, the committee states that the incidence of skin trouble attributable to synthetic detergents is no higher than that previously due to the use of soap products, alkalies, and allied preparations. Inquiries made by the British Launderers' Research Association have revealed that dermatitis is rare among commercial laundry workers and that no significant increase has occurred since modern synthetic detergents were introduced. Similar investigations made by the Ministry of Health show that among the general population there has been some incidence of cases of dermatitis. Many of them may have been due to the use of unnecessarily strong detergent solutions. In 1951, of just under 10,000 new patients seen at the skin departments of a London and of a provincial teaching hospital, only 143 were suffering from dermatitis attributed to the use of synthetic detergents. The committee states that it has no reason to believe that there has been any increase in incidence since that time.

The manufacturers have reached the same conclusion, based on the results of inquiries among customers and on observation of the incidence of skin irritation among their own employees who have frequent and prolonged occupational contact with synthetic detergents. Users are advised to avoid making up unnecessarily strong solutions and, in any event, to rinse and dry their hands after using these detergents. People with unusually sensitive skins should choose the product best suited to themselves and should continue to use gloves, hand creams, and lotions.

The problem of acute poisoning is not considered serious. The only known case was in the United States, and in this instance a cationic detergent was involved. Most of the synthetic detergents used in England are based on anionic surface agents, and the committee has no evidence to show that these or the "builders" usually incorporated with them would, if swallowed by mistake, have serious effects. The problem of chronic poisoning is more important, as it derives from eating or drinking from crockery imperfectly rinsed after being washed in synthetic detergent solutions or from the drinking water from rivers polluted by sewage effluents containing detergents. Reference is made to an experiment with five commonly used synthetic detergents in which cups were washed in the normal way and drained without rinsing. Sufficient deposits of the detergent remained on the inner surfaces to produce, when the cups were refilled with tap water, concentrations ranging from less than 0.2 to 1.0 ppm of surface-active material. When the cups were rinsed after washing, the concentrations were less than 0.2 ppm—a concentration no greater than that already present in some tap waters before synthetic detergents came into widespread use.

Reference is also made to an investigator who took 1 gm. of sodium alkyl sulfate daily for eight weeks and who also gave, for seven months, 0.2 gm. every two hours in the daytime to a series of patients with gastric ulcer. In neither case was any ill-effect observed. No evidence was found to indicate that anionic or nonionic surface-active agents are harmful in this respect, but observations should be continued for long periods before a final conclusion is reached. Because of the widespread use of synthetic detergents, domestic sewage now contains complex compounds that are not completely destroyed during the treatment of sewage and water. Since the problem of dealing effectively with current synthetic detergents in sewage is considered almost unsolvable, it is essential that the manufacturers investigate the feasibility of replacing the present common types of household synthetic detergents with products of similar efficiency but based on surface-active agents less resistant to known methods of sewage treatment than those used at present. The committee is divided on the question of whether the public interest is sufficiently safeguarded while the recommended research is being carried out.

Emulsifying and Stabilizing Agents.—The Food Standards Committee of the Ministry of Agriculture, Fisheries and Food recommends that the use of emulsifying and stabilizing agents should be subject to statutory regulations and that the control of such agents can best be secured by specifying the substances that may be used. Those agents that are natural constituents of certain foods or are already common ingredients of food apart from their use as emulsifying and stabilizing agents need not be regulated. Apart from these, those recommended for inclusion on an approved list are as follows: superglycerinated fats, synthetic lecithin, propylene glycol alginate, propylene glycol stearate, methyl cellulose, methyl ethyl cellulose, sodium carboxymethyl cellulose, stearyl tartrate, diacetyl tartaric acid esters of superglycerinated fats, monostearin sodium sulfoacetate, and sorbitan esters of fatty acids. The addition of emulsifying and stabilizing agents to milk should not be allowed. Of the approved substances, superglycerinated fats and stearyl tartrate should be allowed in bread. The existing prohibition on the use of thickening substances in cream should be extended to cover reconstituted cream. It is not necessary or practicable to specify limits to the amount of an approved emulsifying or stabilizing agent that may be present in food, but the amount used should always be the smallest quantity consistent with the best commercial practice. Specifications of purity for the approved substances should be drawn up in order to ensure that they are of a high standard of purity when used in food.

Cost of the Welfare State.—At the end of 1955, the Ministry of Pensions and National Insurance was paying war pensions to 870,000 persons; family allowances to 3,250,000 families, consisting of about 8,250,000 children; retirement pensions to 4,500,000; widows' benefits and guardians' allowances to 470,000; and industrial disability pensions to about 130,000. During 1955, new claims for sickness benefits totaled nearly 8 million, for unemployment benefits over 2,250,000, and for industrial injury benefits over 830,000. The combined cost of these and other social benefits being paid by the Ministry of Pensions and National Insurance was at the rate of about 2.38 billion dollars a year. These are some of the facts presented in the annual report of the ministry for 1955. New claims for sickness benefits in 1955 totaled just over 7,900,000, at a cost of over 236 million dollars. It is estimated that 746,000 maternity grants were awarded and that in the same period 287,000 home confinement grants and 196,000 maternity allowances were awarded—at a cost of over 36 million dollars. Prosecutions for alleged traffic in used National Insurance stamps and other misuse of such stamps rose from 243 in 1954 to 320 in 1955. Criminal proceedings for failure to pay contributions and for allied offenses totaled 4,662. Legal proceedings were taken by the minister against 1,014 persons for offenses connected with improperly obtaining benefits; there were convictions in 976 cases.

Alcohol and Body Build.—Evidence suggesting that fat people have a special taste for alcohol is presented by R. W. Parnell (*Internation. J. Alcohol* 1:127, 1955). His conclusions are based on the findings in three different groups. The first group was composed of 265 male Oxford University students about whose drinking habits inquiry was made at the time of routine health examination. Their average age was 22. A correlation of their drinking habits and the findings on somatotyping showed that 25% of the endomorphs took alcohol regularly as compared with less than 5% of the linear ectomorphs. Dominantly muscular men (mesomorphs) occupied an intermediate position. At the age of

22, young men's habits are barely established, but it is reasonably certain that alcohol consumption will not have altered their physique to any material extent. The same trend in drinking was found among 92 male patients, aged 16 to 65 years, in a mental hospital. The third group was composed of 200 juvenile delinquents, in whom the general level of heavy drinking was substantially higher than among the students and mental hospital patients, but the highest proportion of heavy drinkers in this group was also found among the endomorphs.

Deaths due to Anesthesia.—For the first time the annual report of the chief medical officer of the Ministry of Health gives the number of deaths occurring as a result of the administration of anesthetics. There were 562 deaths associated with anesthesia, or about 0.1% of all deaths occurring in the population. In 1949 a plan was initiated by the Association of Anesthetists of Great Britain and Ireland for the reporting of deaths due to anesthesia. A committee was set up to consider such deaths, and it has now issued its report on the first 1,000 reports collected (*Anæsthesia* 2:194, 1956). In almost 600 of the cases, death was associated entirely, or to a large extent, with the administration of an anesthetic. The commonest single cause of death was the inhalation of vomitus. This occurred more often in labor than in surgical operations. In obstetric cases requiring operative treatment, anesthesia has become the commonest cause of maternal death. The report also reveals the frequency of fatalities after the intravenous use of barbiturates. The next commonest cause after death due to inhalation of vomitus is death during the immediate postoperative period due to respiratory obstruction or depression of respiration. Other causes of death listed are endotracheal anesthesia, convulsions, the use of antidotes and analeptics, spinal anesthesia, and deliberate induction of hypotension to minimize bleeding. Lack of skill, inadequate equipment, and insufficient medical or nursing supervision are responsible for many of the deaths. Sometimes in the immediate postoperative period patients are left without efficient suction in the care of a student nurse. Some patients are given powerful drugs without the physician's full appreciation of their effects. Ultimately the prevention of deaths resulting from the administration of anesthetics will depend on better training of anesthetists and nurses.

Blood Groups, Pernicious Anemia, and Duodenal Ulcer.—An editorial in the *British Medical Journal* (2:723, 1956) states that the collection of data from a number of centers shows fairly conclusively that pernicious anemia is commoner in persons of blood group A than in those of blood group O and also perhaps, though the numbers are small, than in those of blood group B. The greater incidence in group A appears in both sexes. An analysis of data, by Dr. C. A. Clarke and co-workers (*Brit. M. J.* 2:725, 1956), from 293 blood relatives with a history of duodenal ulcer gave no evidence to support the hypothesis that a person with blood group O is more likely to have a duodenal ulcer than are his blood relations with blood group A, B, or AB. It will also be a task for the future to ascertain whether the secretor phenomenon is likewise involved in other diseases known to be related to the ABO blood groups, particularly such diseases as carcinoma of the stomach and pernicious anemia. No causal relationship, whether of blood group or of secretion, has been established with any of the diseases mentioned, but, if and when such causal relations become established, it will become a matter of more than theoretical interest to investigate in detail the biochemical mechanism whereby the blood-group substances tend to protect or to damage the intestinal wall or the other tissues of the body. If, as appears likely, many diseases have an incidence that varies according to blood group and if the relation is a causal one, the cumulative natural selective effect on the blood groups is likely to be great. This may be the main reason for the different blood group frequencies found in different populations.

The Old Should Stay at Work.—At the annual meeting of the Association of Industrial Medical Officers, Dr. Andrew Meiklejohn, of Glasgow University, said that planning would soon be one of the major causes of ill-health among workers and others. Recommending continued employment after normal retiring age, he said the decision must be made by the person concerned. "Heaven forbid that we should get any more planning of the worker." Aside from the need for the production put forth by older workers, physicians should stress the fact that the real importance of the continued employment of the older workman is for his own sanity and general well-being. There is no health—physical, mental, social, or moral—in idleness, and idleness is what enforced retirement means for most unskilled laborers in industrial areas. Prof. Sven Forssman, medical adviser to the Swedish Employers' Federation, pointed out that with mechanization heavy work was disappearing. This gave a better chance to the older worker, who, moreover, could compensate for reduced physical strength by experience. A longer lunch period, with a corresponding wage reduction, has been tried with success in some industries.

The Ring Around the Bathtub.—Bacteriological cultures of 20 deposits taken at random by J. A. Boycott from the greasy waterline left after use on the bathtub in the women's ward of a hospital showed viable bacteria in all. These included coliform bacilli, Micrococcus pyogenes var. aureus, Streptococcus faecalis, and species of Neisseria (*Lancet* 2:678, 1956). An investigation was therefore carried out for the best practical method of cleaning bathtubs and basins after use. The following method is recommended, as it makes preliminary cleaning unnecessary and appears to be effective. Water, as hot as can be borne by the bare hand, is run into the tub to between a twentieth and a tenth of its effective content (1 to 2 gal.). To this is added 15 cc. of an approved hypochlorite and detergent sufficient for cleaning purposes. Because some detergents cause a release of chlorine, the hypochlorite and detergent should not be mixed before use. The tub is then washed thoroughly with a clean cloth used for this purpose only and the water allowed to drain out. Subsequent washing with tap water is unnecessary unless there is gross dirt left loose in the tub or unless an excess of detergent has made the tub slippery.

Prefrontal Leukotomy.—Elithorn and Slater in the *British Medical Journal* (2:739, 1956) say that recent correspondence in the *Lancet* and the *British Medical Journal* has shown that there are still widely diverging views on the value of leukotomy in the treatment of mental disorders. Of 103 patients, 66 were glad to have had the operation, 14 regretted it, and 23 were neither glad nor sorry that they had had the operation. The views of 93 relatives were also obtained: 72 thought the patient was better off, 11 thought the patient worse, and 10 thought it had made little difference. Unwelcome changes were reported by 43 patients and 51 relatives. A good result was reported much more often with a standard than with a modified operation. On the other hand, the incidence of bad effects was only slightly higher with the standard operation. It is emphasized that, whoever makes it, the determination of the value of a leukotomy to the patient is subjective.

X-Ray Hazards from TV Apparatus.—There is little danger to the public from x-rays emitted by cathode-ray tubes used in television sets, according to L. B. Bourne (*Lancet* 2:510, 1956). This conclusion is based on the findings in an investigation in which nine men and one woman were exposed for one working week to cathode-ray tubes subjected to voltages up to 20 kv. and monitored for irradiation from x-rays and cathode-ray tubes. In all the tests the results were below the tolerance level specified by the International Commission on Radiological Protection. This safety of television sets is due to the adequate safety standards incorporated in such apparatus. It may, however, become necessary to adopt new standards of protection if changes are made in television receiving equipment.

Candida Organisms in Sputum Specimens.—In order to determine the incidence of Candida species in routine sputum specimens, Armstrong and Hall (*Month. Bull. Min. Health* 15:220, 1956) examined 307 specimens: 218 from nine chest clinics, 87 from four sanatoriums and one hospital for infectious diseases, and 2 from general practice. Yeasts were isolated from 195 specimens, or 63.5%. Of the 195 patients whose sputum yielded yeasts, 86 were also known to be excreting tubercle bacilli. All the 12 strains of Candida albicans that were inoculated subcutaneously into guinea pigs proved to be virulent. Since no particular precautions were taken in collecting the specimens, the mouth must be considered the source of some of the strains of yeasts isolated.

CORRESPONDENCE

NEUROLOGICAL ILLNESS FOLLOWING POLIOMYELITIS VACCINATION

To the Editor:—The Poliomyelitis Surveillance Unit of the Communicable Disease Center, U. S. Public Health Service, has, since its inauguration in May, 1955, systematically collected information from all states on all aspects of field experience with Salk vaccine. This information is compiled in a weekly or bimonthly mimeographed report that is distributed to health departments, epidemiologists, clinicians, laboratory workers, and others interested in this field.

As one aspect of our national poliomyelitis surveillance program, we have collected data on a number of cases of neurological reactions following poliomyelitis vaccination. These were most recently summarized in our report no. 88. The neurological reactions following vaccination have been diverse in their manifestations. In the group included in report no. 88 there was only one case of myelitis. Since that report we have received several more reports of neurological illnesses in recently vaccinated individuals. Only one of these was a case of transverse myelitis. Both of the cases of transverse myelitis that have been reported to us have occurred in young children.

It is difficult to reach any final evaluation of these reports. However, since over 90 million inoculations of poliomyelitis vaccine have been given since May, 1955, it would be expected that a number of cases of neurological and other types of illness would occur by coincidence in recently vaccinated individuals. The relatively small number of possible complications of this nature combined with their diversity, and in face of the millions of inoculations given, lead us to believe at the present time that there is probably no causal association with the vaccine.

Our channels of reporting for various aspects of our program are primarily through state and local health departments. Since the health departments have no routine method of receiving reports of such peculiar reactions to vaccine, it is probable that we have not heard of all incidents of this type. It would be of great value to us if it could be noted that the Public Health Service is attempting to collect these data on a nationwide basis. We would be most interested in receiving reports of this kind, and these should be addressed to me at the address given below. Practitioners might also be urged to report such instances to their local or state health departments, which would then forward them to us. I would also be happy to answer any queries concerning these cases that are directed to us. Anything THE JOURNAL can do along this line to stimulate a more complete reporting on these atypical situations would be a value to us and would be highly appreciated.

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SOCIAL SECURITY

To the Editor:—I should like to point out two errors in the article by Webster and Coffey, "Social Insecurity—The Trap Awaiting the Young M.D.," which appeared in the Sept. 15, 1956, issue of THE JOURNAL, page 231. It is stated "you cannot collect both survivors' benefits and retirement benefits. It's one or the other." This is, of course, true. However, no young physician can know which type of benefit he will need, whether he will survive long enough to retire, or whether he will die prematurely. Social security takes care of either eventuality for the single premium. Therefore, the cost of social security should be compared with the cost of commercial survivors' benefits plus retirement benefits, rather than with the cost of each individually, as was done in this article. It is stated "We believe your chances of retiring are less than one in seven . . . let us look for costs of a private [retirement] plan that would pay benefits equaling one-seventh of . . . social security . . . benefits." The cost of such private insurance is naturally found to be lower than that of social security. If I will need such and such a monthly income on which to retire, I will not be able to live on the fraction of that amount determined by the likelihood of my need for it. By such reasoning, my home, which is worth $20,000, should be insured against fire for only $200, since the chance of a house in my community catching fire is only one in a hundred.

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To the Editor:—The issues of THE JOURNAL for Sept. 15 and 22, 1956 (pages 231, and 426, respectively), contain a two-part article on social security written by two physicians. The subject of social security is, indeed, pertinent to all physicians in America today. This is so because of a train of events that has led to a situation where we physicians are now the only group of workers in the United States not covered by this program. When one considers the number of physicians compared to the total population, we form a small fraction, and a searching reappraisal of our position might be in order. In making such a reappraisal, some considerations to bear in mind before arriving at a conclusion are as follows: There is no move afoot in either major political party to abolish the social security system; both parties have outlined plans to broaden and strengthen the program. The social security system is underwritten by the United States government, and so every United States citizen is, in turn, an underwriter. Since we physicians are also citizens, we are in a position of underwriting a program from which we derive no benefit. The social security program came into being as a result of legislation. However, the operating methods and details were set up by an advisory committee of citizens, and such a committee has continued to function in an advisory capacity. From the beginning, this committee has included successful and well-recognized executives from the insurance industry. When the annual committee reports of the county medical society are read, one hears, among others, the report of the welfare committee. When this report is read, one learns that there are fellow physicians living in retirement and survivors of deceased colleagues who could well use the benefits of a program such as the social security program offers, yet if they were getting this help they would not be getting charity. In conducting a referendum vote among the physicians as to whether they favor being taken into the social security program as a group, it is unrealistic to include the question as to whether the individual is in favor of inclusion on an optional basis. It is unrealistic to vote on such a question, because no such optional plan would be or could be considered by Congress. It is an inherent feature of the social security program, as it is set up, that it take in blocks of citizens on a compulsory basis. In recent years, doctors have been gaining experience in the operation of insurance plans through their local medical contract bureaus. This experience has taught us what professional insurance underwriters already knew, viz., that, in writing a group insurance contract, the larger the percentage of the group that can be included, the better will be the experience, and thus the lower the premium.

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To the Editor:—"Social In-Security—The Trap Awaiting the Young M.D." by Webster and Coffey in the Sept. 15 issue of THE JOURNAL, page 231, is a very interesting and provocative article. However, there are a couple of questions and circumstances the authors do not cover. For example, they omit mention of the credit allowed for military service. There are more than a few medical reservists who were called to active duty as much as 18 months before Pearl Harbor, served six years, and then another two during the Korean conflict. This equals eight years' maximum premiums under social security that the ex-service man receives gratis. Medical Economics, Inc., published a report of a survey of physicians in which the doctors, by a slight majority, did not favor compulsory social

security legislation. However, among psychiatrists 64% favored the measure. More than 90% of psychiatrists are full-time or part-time government employees and, being "pension conscious," seek to supplement their retirement provisions. If ordinary insurance offers better and cheaper coverage, why have underwriters, accountants, economists, etc., not enlisted congressional support to repeal social security? Why did the legal profession become subscribers to social security only this year? Certainly somewhere there must be a shrewd attorney, particularly a tax expert, who could detect the same flaws and disadvantages as were picked up by Webster and Coffey.

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To the Editor:—Enclosed are two pamphlets on social security (Poirot, P. L.: Social Security, New York, the Foundation for Economic Education, Inc., 1954. Manion, C. E.: The Social Security Tax, reprinted from Ideas on Liberty, no. 3, November, 1955, New York, the Foundation for Economic Education, Inc.). I am forwarding them after seeing in The Journal the articles by Webster and Coffey entitled "Social In-Security—The Trap Awaiting the Young M.D." in the Sept. 15 and 22 issues, pages 231 and 426 respectively. They discuss thoroughly the economic aspects of social security. Would it not now be appropriate to point out some of the moral, constitutional, and basic Americanism aspects of this monstrosity? These two articles may be reprinted without the necessity of applying for permission, which, in any event, would be freely given and which could aid physicians in making up their minds on this matter.

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THE PHYSICIAN AND DISASTER

To the Editor:—Concerning the editorial "The Physician and Disaster" in the Nov. 3, 1956, issue of The Journal, page 977, I agree that local planning for disaster is the logical beginning. Coordination can then be achieved with state and region, rather than attempting to accomplish this from "above" or at national level. In Tulsa, Okla., each physician has a disaster assignment in the form of a certificate that he has received by mail, signed by the president of the county medical society and the civil defense medical director. Assignments were made for hospital duties, auxiliary hospital duties (in high schools), and field aid stations. There are no conflicting assignments. In this manner it is hoped that knowledge of a disaster situation will automatically cause each physician to proceed to his regular post of duty without undergoing the preliminary period of confusion that otherwise might ensue.

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WHIPLASH INJURY

To the Editor:—The article by Gotten, "Survey of One Hundred Cases of Whiplash Injury After Settlement of Litigation" (*J. A. M. A.* **162**:865 [Oct. 27] 1956) is the best approach to the problem that I have yet read. However, it is based only upon cases that were the subject of litigation and the conclusions are of necessity *post hoc, ergo propter hoc.* The figures can have no valid meaning until someone makes the same study, using the same questionnaire on the same number of cases of whiplash injury that have not been the subject of litigation. I strongly suspect that in such a control study the percentage recovery, length of disability, symptoms, and permanent disability will not be much different in the two series. Gotten's description of the mechanism of whiplash injury follows the common error, stating that when the victim's car is struck "from behind or from the side. His body is suddenly thrust in a position of acute flexion, followed by extension of head." This is exactly the reverse of the fact. Abbott, in his comment on Gotten's article (*J. A. M. A.* **162**:917 [Oct. 27] 1956), is to be complimented for a diagram showing the correct mechanism. It is also correctly shown on page 48 of the excellent monograph "The Cervical Syndrome" by Ruth Jackson (Springfield, Ill., Charles C Thomas, Publisher, 1956), which should be required reading for everyone interested in the subject. I would also recommend the "Symposium on Whiplash Injuries" in the *International Record of Medicine and General Practice Clinics* for January, 1956, pages 1 through 30.

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AMINOMETRADINE FOR TOXEMIA OF PREGNANCY

To the Editor:—I read with great interest the report of the Council on Pharmacy and Chemistry on aminometradine (Mictine) published on page 116 of the Sept. 8 issue of The Journal. Of particular interest to me was the sentence in the fourth paragraph, which reads as follows: "Sufficient valid evidence is lacking, however, of the drug's usefulness in toxemia of pregnancy or premenstrual tension." I have no quarrel about the usefulness of the drug in premenstrual tension, since I have had no experimental work to substantiate this claim. However, I would like to take exception to the statement about its usefulness in toxemia. My associates and I have carried out a substantial amount of research regarding the metabolic effects of aminometradine in toxemia of pregnancy. The first report of Voskian and myself was published in the July issue of the *Journal of Applied Physiology* (**9**:111, 1956). The data included in this paper show clearly that aminometradine produces a significant increase in water and electrolyte excretion, thereby improving the edema of both normal patients and patients with toxemia. No changes in the factors that control acid-base regulation were found. The effects of aminometradine were even more striking in patients with toxemia than in normally pregnant ones. At the present time, we are compiling the data obtained during the last two years from ambulatory pregnant patients who were given aminometradine for alternate periods. Clinically and experimentally, the data indicate that aminometradine is an effective drug in toxemia and that the side-effects are minimal. Under these circumstances, it seems to me that the evidence toward its usefulness in toxemia is just as favorable as in cardiac or nephrotic edema.

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HEART CATHETERIZATION

To the Editor:—The 1956 Nobel Prize for Medicine was awarded to one German and two American physicians for catheterization of the heart. According to news releases the experiments of Forssmann, the German scientist, date back to 1929. In this connection it may be of interest that catheterization of the heart was performed in 1908 by Fritz Bleichroeder, chief resident of the medical department of the Municipal Hospital Gitschinerstrasse in Berlin, Germany. Bleichroeder was in no way interested in the physiology or pathology of the heart. He was interested in the carbohydrate metabolism and wanted to obtain blood from the heart after 125 gm. of glucose was ingested. After numerous experiments on dogs without any accident, he successfully catheterized the heart of Joseph Portmann, laboratory technician at the hospital. Bleichroeder's approach to the heart was from the femoral vein. The procedure was done with a ureteral catheter. At the time of Bleichroeder's experiments I was intern at his department. When I finished my internship, Bleichroeder's investigations were not yet finished. I then became a ship's surgeon of the Hamburg American Line, and I don't know whether the procedure was ever published.

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MISCELLANY

Following is a special report prepared by the Washington Office of the American Medical Association.—ED.

FEDERAL MEDICAL-HEALTH SPENDING FOR FISCAL YEAR ENDING JUNE 30, 1957

This is our fourth annual report on the federal medical budget. To the extent we can make it so, it is a factual, objective study of how much the U. S. government is spending this fiscal year in all health and medical fields. We are dealing with money that has been appropriated and currently is available to be spent. This special report is based on the actual appropriations, and on information obtained directly from federal agencies and departments.

When talking in billions of dollars, it is often difficult to make the totals meaningful. However, here are some conclusions:

1. What the federal government is spending in health fields alone represents an average cost of $15.17 per man, woman, and child (Population, family-size, and employment figures from the census bureau). Incidentally, it is costing each of them $1.78 more this year than last.

2. If only wage-earners are considered, they will be paying on the average $38.72 each to finance the federal government's health-medical operations. That is $4.40 more than they paid last year.

3. The average family will be paying $54.61 this year for the U. S. government's health-medical activities.

4. Even in an over-all federal budget of 61.2 billion dollars, the total health cost is not insignificant. It is a billion dollars more than the cost of running the Commerce Department, half a billion more than all Agriculture Department expenses, and six times the Interior Department's budget.

5. Mostly because of spectacular increases for research, health programs of the Department of Health, Education, and Welfare this year will cost half again as much as they did last year.

6. For the first time since World War II, the medical costs of the Veterans Administration top the list, passing the Defense Department. A close third is the Department of Health, Education, and Welfare.

This report is based on spending alone. We do not undertake to evaluate the many individual programs. Obviously many of them are necessary just to maintain the United States' unsurpassed public health standards. Others undoubtedly will pay rich dividends in procedural and scientific discoveries. Some probably could be questioned. But the only purpose of this study is to show exactly what they cost.

MEDICAL-HEALTH BUDGETS OF FEDERAL DEPARTMENTS, AGENCIES, AND COMMISSIONS FOR THIS FISCAL YEAR

Summary of Budgets

Agency	Fiscal 1957	Fiscal 1956
Veterans Administration	$825,024,300	$790,185,800
Department of Defense	790,105,000	818,104,500
Department of Health, Education and Welfare	772,661,800	526,935,400
Federal Civil Defense Administration	49,810,000	30,450,000
Atomic Energy Commission	31,525,000	27,700,000
International Cooperation Administration	29,310,000	25,441,000
Department of State	15,496,000	13,669,790
Federal Employees Health Program	10,000,000	6,000,000
National Science Foundation	8,000,000	5,000,000
Department of Labor	7,151,126	7,336,000
Department of Interior	6,138,205	5,770,000
Panama Canal Zone	6,055,300	5,702,900
Department of Treasury	3,511,700	2,990,000
Department of Justice	1,580,000	1,470,000
Federal Trade Commission	1,000,000	1,000,000
Department of Commerce	547,914	277,586
Civil Service Commission	386,000	382,600
National Advisory Committee to Selective Service	180,000	180,000
President's Committee for Handicapped	134,678	130,000
Health Resources Advisory Commission	90,000	101,000
Office of Attending Physician of Congress	12,145	.....
Totals	$2,558,719,168	$2,268,826,576

VETERANS ADMINISTRATION

(This Year: $825,024,300—Last Year $790,185,800)

Inpatient Care in VA Hospitals.....$619,614,000

(Last year: $615,869,000)

The VA's largest single medical appropriation covers inpatient care in 173 VA hospitals and provides for an average of 121,865 beds a day. At present the VA reports daily patient load at 111,540, just over 91% of capacity. The appropriation includes salaries of physicians and other personnel, medical rehabilitation of veterans, dietetic and nursing services, social services, and special services, such as recreation and transportation of veterans.

Outpatient Care $82,638,000

(Last year: $85,471,200)

The bulk of this appropriation is for outpatient care in about 100 VA clinics. The remainder is earmarked for fees to physicians ($7,738,000) and dentists ($8,415,000) under the home town care program.

Modernization and Replacement Construction.....$51,635,000

(Last year: $30,000,000)

This amount is for work on existing units costing over $250,000 a project and equipment for new units. The money is available until expended. (See Major Alterations and Improvements item for smaller projects.)

Domiciliary Care $29,319,000

(Last year: $23,062,500)

Domiciliary care is being provided in 17 VA facilities for about 17,000 veterans who, while incapacitated for employment, are not in need of full hospital care. The VA also makes payments to 30 state homes in approximately 30 states with a daily patient load of around 9,000. Payments this fiscal year are estimated at $5,888,000 (under Public Law 613, 83rd Congress, federal contributions to these homes were raised from a maximum of $500 to $700 a year per patient).

Contract Hospitalization $13,967,000

(Last year: $15,237,300)

This appropriation finances an average daily patient load of 3,260 veterans in federal hospitals other than VA and in state and municipal hospitals. Patients in federal non-VA hospitals are estimated at 1,345 and in nonfederal hospitals, 1,915. Psychotic cases make up the largest single category of contract cases.

Medical Administration $7,300,000

(Last year: $7,422,000)

To operate the VA Department of Medicine and Surgery in the Washington central office and the seven area medical offices; included are salaries, travel, and like expenses.

Medical Research $10,990,300

(Last year: $ 6,381,600)

For research, mostly in VA hospitals. The breakdown: general medical and surgical research, $5,870,000; atomic medical research, $2,000,000; prosthetics testing, $990,300; neuropsychiatric, $1,250,000; tuberculosis, $780,000; and other, $100,000.

Major Alterations, Improvements, and Repairs.....$4,533,000

(Last year: $3,900,000)

For alterations, improvements and repairs to VA clinics and domiciliaries (costing less than $250,000 per project).

Supply Depot Operations.....$1,628,000
(Last year: $1,642,200)

For maintaining and operating supply depots handling the purchase, shipping, and storage of medical supplies and equipment used by the Department of Medicine and Surgery.

Medical Education and Training.....$1,400,000
(Last year: $1,200,000)

For VA training programs for physicians and other VA personnel, in medical specialties and auxiliary services.

Medical Care—Philippine Veterans.....$2,000,000
(Last year: not reported)

Until 1960 the U. S. government will contribute for the care of Philippine veterans.

DEPARTMENT OF DEFENSE
(This Year: $790,105,000—Last Year: $818,104,500)

Army Medical Services*.....Approx. $290,000,000
(Last year: $300,000,000)

Air Force Medical Services*.....Approx. $223,000,000
(Last year: $286,000,000)

Naval Medical Services*.....Approx. $277,000,000
(Last year: $232,000,000)

The estimated costs for the medical services of the Army, Air Force, and Navy include expenses normally associated with the operation of military hospitals and dispensaries, military and civilian salaries, medical supplies and equipment, utilities, communications, transportation, travel subsistence, maintenance and repair of buildings and grounds, expenses for construction, medical education and training, medical research, and preventive medicine.

Office, Assistant Secretary of Defense (Health & Medical).....Approx. $105,000
(Last year: $104,500)

For salaries, travel and administration of this office, and for travel expenses and consultant fees for the Defense Department Civilian Health and Medical Advisory Council.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
(This Year: $772,661,800—Last Year: $526,935,400)

Division of Hospital Facilities.....$126,381,000
(Last year: $112,250,000)

This division administers the federal aspects of both the original and expanded Hill-Burton programs. The total appropriation is divided into the following four categories:

Hill-Burton Original Program.....$102,800,000
(Last year: $ 88,800,000)

This appropriation, allotted to the states on the basis of population and per capita income, assists in the financing of new hospitals and related health facilities construction under the original Hill-Burton program. To date federal funds have partially financed approximately 2,869 projects, including nearly 132,096 hospital beds, and 636 public health centers, 18 state health laboratories and approximately 100 nurses homes and training facilities. To date federal contribution represents $762,000,000 and is matched by sponsors' funds amounting to $2,370,000,000.

Medical Facilities (Category Program).....$21,000,000
(Last year: $21,000,000)

The total allotted to the states this year on a population-per capita income formula will assist in the financing of new construction under the 1954 amendments in four categories as follows: $6,500,000 for hospitals for the chronically ill and impaired; $6,500,000 for diagnostic centers, or diagnostic and treatment centers; $4,000,000 for nursing homes; and $4,000,000 for rehabilitation facilities. As under the original program, the federal share may range from one-third to two-thirds of the total project cost. As of July, 1956, there was approved a total of 204 projects divided among the four categories as follows: facilities for chronically ill, 42; diagnostic-treatment centers, 77; nursing homes, 42; and rehabilitation facilities, 43.

Hill-Burton Administrative Expenses.....$1,381,000
(Last year: $1,250,000)

This appropriation is used for salaries and expenses for the hospital survey and construction program for Washington, D. C., and eight regional offices at the federal level.

Research $1,200,000
(Last year: $1,200,000)

Authorized in 1949 but not appropriated until 1955 was this item for research, experiments and demonstrations on utilization of hospital services, facilities, and resources. The bulk of the money is earmarked as grants to states, universities, hospitals, hospital associations, professional associations, and community organizations, and a small amount for direct research by the Public Health Service.

National Institutes of Health.....$216,508,000
(Last year: $ 97,823,000)

The total for the institutes is appropriated as follows:

National Cancer Institute.....$48,432,000
(Last year: $24,828,000)

About two-thirds of this appropriation is earmarked for grants to nonfederal individual investigators and private institutions for research and training and states receive $2,250,000 for cancer control work. The balance is used for direct operations, salaries, supplies, and for this institute's share in the cost of operating the Bethesda (Md.) Clinical Center and related auxiliary services.

National Heart Institute.....$33,396,000
(Last year: $18,778,000)

Grants to nonfederal individual investigators and public and private institutions for research and training take about two-thirds of the appropriation, and $2,125,000 is allocated to states for heart disease control. The remainder is for direct operations, such as salaries and supplies, and to support the Clinical Center.

Mental Health Institute.....$35,197,000
(Last year: $18,001,000)

Approximately 60% of this appropriation is apportioned for research and training through grants to individual investigators and public and private institutions. The sum of $4,000,000 is allocated to the states for community mental health services. The remainder will support direct operations, such as salaries, expenses, and to help finance the Clinical Center and related auxiliary research services.

Arthritis and Metabolic Diseases Institute.....$15,885,000
(Last year: $10,740,000)

*All figures are estimates because appropriations are not broken down into categories of medical expenditures. Anticipated reduction in the Department of Defense medical program during fiscal year 1957 is primarily attributable to more effective joint utilization of the facilities, fewer personnel assigned to operation, and a lower level of hospital and dispensary construction. Reductions, however, have been partially offset by an estimated expenditure of 41 million dollars during fiscal year 1957 for the Dependent Medical Care Program.

Grants to public and private investigators for research and training total $10,290,000. The remainder will go for direct operations, such as salaries and supplies and Clinical Center support.

Neurological Diseases and Blindness Institute.....$18,650,000

(Last year: $ 9,861,000)

Grants to public and private investigators and institutions for research and training total $14,280,000. The remainder is for direct operations, such as salaries and supplies and to support the Clinical Center.

Allergy and Infectious Diseases Institute.....$13,299,000

(Last year: $ 7,580,000)

Research grants to public and private investigators for research and training amount to $8,182,000. The remainder finances direct research and other related services of the Institute.

Dental Health Institute.....$6,026,000

(Last year: $2,136,000)

This appropriation is divided as follows: (*a*) for research and fellowships, $3,700,000; (*b*) direct research at Bethesda, $1,035,000; (*c*) review and approval of research grants and fellowships, $79,000; (*d*) administration, $100,000; (*e*) technical assistance to states, $824,500; and (*f*) coordination and development of dental resources, $287,500.

National Institutes of Health—General Funds.....$12,122,000

(Last year: $ 5,899,000)

These funds are administered by the Division of Research Grants of the National Institutes of Health, with practically all funds being expended for research and training grants, with the exception of 1.7 million dollars for control of biologics (including polio vaccine), which activity is under the Division of Biologics Standards. The balance goes toward supporting fellowships and administrative expenses relating to grants.

NIH Planning and Construction.....$33,501,000

(New category)

There is available for NIH for planning or construction of facilities $33,501,000 broken down as follows: $1,630,000, expansion of surgical NIH units; $200,000, planning for future construction for dental NIH research; $1,371,000, for animal quarters, NIH; $300,000, planning for office building, NIH; $30,000,000 grants for medical research facilities under Public Law 835.

Indian Health Activities.....$48,075,300

(Last year: $38,840,000)

Under Public Law 568 (83rd Congress) PHS assumed responsibility for health of American Indians and natives of Alaska, which formerly was a function of Interior Department. The total is broken down as follows: hospital care in Indian hospitals, $23,001,400; contract patient care, $8,313,000; field health services, $5,940,600; program direction and management services, $2,058,300; and construction of hospitals, clinics and quarters, $8,762,000. The total appropriated for Indian health activities is $48,075,300, to which is added reimbursable items from other government agencies totaling $538,300.

Hospitals and Medical Care.....$40,969,700

(Last year: $34,326,000)

These funds are used for operational cost and maintenance of PHS hospitals and health services in caring for American seamen, Coast Guard and Public Health Service personnel and their dependents, Federal employees injured at work, leprosy patients, and narcotic addicts; includes studies in the development and coordination of nursing resources. It also includes $1,000,000 for grants to Hawaii for care of patients suffering from leprosy and $2,000,000 for nurse training grants. Not shown is approximately $800,000 additional income from reimbursable items from other federal agencies.

Poliomyelitis Vaccine Program.....$23,600,000

(Last year: $30,000,000)

Public Law 411 extended last year's $30,000,000 poliomyelitis vaccine program. Additional appropriated funds amounting to $23,600,000 are available in addition to unexpended appropriations of last year to states for vaccination of children under 20 and pregnant women against poliomyelitis. The federal vaccination program is scheduled to expire on June 30, 1957.

Assistance to States—General.....$17,591,000

(Last year: $18,160,000)

Grants totaling $12,000,000 will be available for apportionment to the states in support of state and local general public health activities. These grants must be matched one state dollar for every two federal dollars. Last year $4,500,000 was available for activities in administering the polio vaccination programs in the states. An additional $4,591,000 supports direct activities of the U. S. Public Health Service in providing technical assistance, consulting services to states, expenses of the National Office of Vital Statistics, international health activities, demonstrations, training activities, and operational expenses. An additional $1,000,000 will be available for grants to schools or direct traineeship awards to individuals for the training of professional public health personnel. In this program matching will be required.

Tuberculosis Control $6,660,000

(Last year: $6,000,000)

Grants to states for diagnostic and treatment clincs, mass case-finding, and follow-up services account for $4,500,000, all of which has to be matched equally by the states. The remainder is for direct operations of PHS.

Communicable Disease Control.....$5,750,000

(Last year: $5,250,000)

The entire appropriation is used for direct activity of the PHS Communicable Disease Center at Atlanta, Ga., and its affiliated operations, including investigations in poliomyelitis. The center carries on studies in epidemiology, furnishes laboratory diagnostic services and sponsors special projects to assist states.

Sanitary Engineering Activities.....$9,000,000

(Last year: $4,690,000)

This program is made up of seven activities as follows: air pollution, $2,740,000; water supply and water pollution control, $4,224,100; radiological health activities, $347,800; milk and food sanitation activities, $446,000; interstate carrier and general sanitation activities, $493,000; Sanitary Engineering Center research activities, $403,100; accident prevention, $51,000; and administration, $295,000.

Venereal Disease Control.....$4,195,000

(Last year: $3,500,000)

Of the total, $1,700,000 goes for direct grants to states for venereal disease detection, treatment and control on a special need basis. The remainder is spent for technical assistance to the states, mostly to pay federal employees assigned to state health departments.

Foreign Quarantine Service.....$3,315,000

(Last year: $3,000,000)

This service operates approximately 250 medical quarantine stations on borders of the United States. It also operates approximately 25 medical examination stations on foreign soil for the examination of aliens seeking visas to enter the United States. Inspections are made of all seagoing vessels and aircraft entering the United States.

Office of the Surgeon General.....$3,892,000

(Last year: $2,762,000)

For administrative expenses of this office, including all housekeeping services, evaluation of public health needs, and personnel training. Included also is $700,000 for administration of the National Health Survey Act authorized by Public Law 652.

Water Pollution Control.....$50,000,000

(New category)

Under a new law passed by Congress in 1956 (Public Law 660), the federal government will make grants for waste treatment plants.

National Library of Medicine.....$1,376,000

(New category)

As a result of Public Law 941 enacted by Congress in 1956, the Army Medical Library has been renamed the National Library of Medicine and transferred to the Department of Health, Education, and Welfare. While it is contemplated that a new structure will be erected to house the library, only operational funds and planning money have been made available by Congress for this fiscal year. Operational funds for the nine months which remained in the fiscal year following the transfer of the library to HEW total $1,026,000. An appropriation of $350,000 was made for planning the construction of a new library building.

Alaska—Disease and Sanitation Investigations and Control $1,185,000

(Last year: $1,125,000)

This appropriation will be divided as follows: $638,000 for grants to the territory for public health services and the remainder for research activities of the Arctic Health Research Center at Anchorage.

Alaska Mental Health Program.....$25,000

(New category)

Authorized by Public Law 830, which calls for the construction of a mental health hospital in Alaska and federal funds for operation of a mental health program. The first appropriation is for initial planning.

Reimbursable Health Program for Other Governmental Agencies $321,800

(Last year: $321,800)

This represents the cost of services expected to be advanced by Public Health Service to other governmental agencies for establishing and operating on-the-job clinics. As a total, however, it is misleading, as a substantial number of government agencies carry on their own health programs independent of PHS. PHS deals largely with Washington personnel, whereas 90% of the government's employees are located outside of Washington.

Social Security Administration.....$161,183,000

(Last year: $125,796,600)

The total includes:

Bureau of Public Assistance (medical payments) .....Approx. $100,000,000

(Last year: $ 90,000,000)

An estimated $265,000,000 of federal, state and local funds is expected to be paid for medical and health needs of public assistance recipients this fiscal year. The United States' share of this total is an estimated $100,000,000. This bureau operates under the Social Security Administration.

Disability Freeze Program .....Approx. $9,000,000

(New category)

Among the administrative expenses of the Old Age and Survivors Insurance program, is an item incurred by excusing disabled persons from paying OASI contributions without penalty in their retirement payments. This phase of the program is referred to as the "disability freeze" amendment to the Social Security Act. This year approximately $9,000,000 will be expended for employees' salaries, working materials, etc.

Permanent and Total Disability Payments..Approx. $11,000,000

(New category)

Under the 1956 amendments to the Social Security Act, persons over age 50 who become permanently and totally disabled may receive payments equal to retirement benefits as though they had reached age 65. This new program will take effect on July 1, 1957. This fiscal year, however, expenses will be incurred for "tooling up." These expenses will include recruiting of additional staff for field offices, training of staff, revising manual materials, negotiation of new agreements with state agencies for rehabilitation, and the furnishing of new materials for states to use, such as forms, etc.

Children's Bureau $41,183,000

(Last year: $35,796,600)

Operating under the Social Security Administration, the Children's Bureau administers grants to states for maternal and child health, and crippled children's and child welfare services. This year grant money totals $39,361,000, divided as follows: $16,000,000 for maternal and child health work, with the states required to spend approximately 50 cents for each federal dollar; $15,000,000 for crippled children's services, same matching requirement; and $8,361,000 for child welfare services, where the only matching requirement is that states must supply some money. In addition the Children's Bureau has $1,822,000 to finance investigating and reporting activities and to administer the grants.

Food and Drug Administration.....$7,979,000

(Last year: $6,266,000)

For administering the federal Food, Drug, and Cosmetic Act, Congress voted $6,779,000, which includes $309,000 for policing the distribution of Salk poliomyelitis vaccine during this fiscal year. FDA will also realize an estimated $1,200,000 from fees paid by industry for certification of biologics, insulin, seafood, etc. The figure for last year does not include fees.

Office of Vocational Rehabilitation.....$42,110,000

(Last year: $36,825,000)

Under the expanded Vocational Rehabilitation Act (Public Law 565, 83rd Congress) Congress this year voted $36,000,000 for grants to states. This is divided as follows: (*a*) support of basic rehabilitation services including medical examinations, surgical and therapeutic treatment, hospitalization, prostheses, occupational tools and aids, vending stands, rehabilitation facilities, vocational training, and funds for maintenance (based on per capita income and populations as in Hill-Burton), $33,500,000; (*b*) extension and improvement of state programs, $1,500,000; (*c*) special grants to states or nonprofit organizations for projects designed to expand the rehabilitation program (2-1 federal-state matching), $1,000,000. In addition $2,950,000 is available for training of rehabilitation personnel, including physicians, therapists, psychologists, counselors, medical, and psychiatric social workers; $2,000,000 for grants to states and other public and nonprofit agencies and organizations to pay part of the cost of special research and demonstration projects in vocational rehabilitation; and $1,160,000 for federal administrative costs.

United States Office of Education.....Approx. $2,545,000

(Last year: not reported)

Practical Nurse Training: For a goodly number of years the Office of Education has been making grants to states for vocational education in all fields of endeavor. It is estimated that during the last fiscal year approximately $500,000 in grants was used to educate practical nurses. For this year, the Office of Education has available $31,267,000 for grants to states. Included in this figure is $2,000,000 earmarked funds recently authorized by Congress (practical nurses). An appropriation

was voted in this amount, plus an additional $45,000 for added costs of administration. Office of Education officials believe that the states will not diminish the level of last year's program, which would mean approximately $2,545,000 is available for practical nurse education.

FEDERAL CIVIL DEFENSE ADMINISTRATION

(This Year: $49,810,000—Last Year: $30,450,000)

Projected health and medical spending by FCDA this year moves close to the $50,000,000 mark for the first time. Out of a total appropriation of $93,560,000, the estimated $49,810,000 spending for the FCDA health office includes $47,000,000 for stockpiling medical and other supplies owned wholly by the federal government, $1,700,000 for matching funds to the states to help them in their medical stockpiling, $810,000 for research, and $300,000 for administration costs.

ATOMIC ENERGY COMMISSION

(This Year: $31,525,000—Last Year: $27,700,000)

The Atomic Energy Commission's Division of Biology and Medicine has about 2.7 million dollars more than last year for research projects. This year's total includes the following spending plans: cancer, $3,002,000; other medical, $9,729,000; biological, $10,821,000; biophysical, $3,459,000; development of new laboratory equipment, $2,319,000; vocational and special training, $615,000; radioisotope distribution, $510,000; and miscellaneous items, $1,070,000.

INTERNATIONAL COOPERATION ADMINISTRATION

(This Year: $29,310,000—Last Year: $25,441,000)

Technical Cooperation Programs.....$16,380,000

(Last year: $20,141,000)

The International Cooperation Administration through direct contributions (which do not have to be matched dollar for dollar) is helping underdeveloped countries to control specific diseases, to set up national and local health services and to establish environmental sanitation. Countries receiving money make contributions in cash, facilities or services in varying degrees.

Development Assistance Programs.....$12,930,000

(Last year: $ 5,300,000)

Spending for emergency health programs (particularly in malaria control on which there is new world-wide emphasis) under ICA direction is up from last year. The agency has $2,500,000 for the Far East, and $10,430,000 for the Near East, South Asia, and Africa. The largest single beneficiary will be India.

DEPARTMENT OF STATE

(This Year: $15,496,000—Last Year: $13,669,790)

United Nations Children's Fund.....$9,700,000

(Last year: $9,000,000)

The United States' share of the Children's Fund is up about $700,000 over last year for a total of $9,700,000, but the percentage of the United States' contribution to the total fund has dropped slightly from 60 to 57.5. This is due to the fact that some of the 65 other nations contributing have increased their share slightly. The fund is aiding about 264 health and medical projects in 92 countries and territories, benefiting 32 million children and mothers. Last year the fund treated 1,800,000 children for yaws, vaccinated 14,500,000 against tuberculosis, and 9,000,000 against malaria and other insect-borne diseases.

World Health Organization.....$3,410,000

(Last year: $3,349,790)

The United States' share of the WHO budget remains at one-third of the total of all member nation contributions. Among the 84 countries agreeing to make contributions is Russia, which until recently has been inactive. Last year WHO was sponsoring about 500 health projects in 106 countries and territories. WHO's over-all budget is broken down this way: approximately 72% for operating programs, 10% for administration and salaries, and the rest for such expenses as holding international conferences, and to compensate for nonpayment by inactive member countries.

Pan American Sanitary Bureau.....$1,386,000

(Last year: $1,320,000)

The United States is contributing approximately two-thirds of the bureau's regular budget which this year totals $2,100,000. In addition, the United States plans an extra $1,500,000 for 1957 malaria eradication programs. Because these international groups operate on a calendar year, the special contribution is not shown in this report. The bureau, in existence many years before WHO was organized, is the regional office of WHO for the Americas. The bureau is sponsoring health programs in 21 Latin American countries and the United States.

Foreign Service Employees Medical Care.....$1,000,000

(New category)

The 84th Congress, under Public Law 828, broadened an existing medical care program for foreign service employees to take in their dependents, provided they are living overseas. State Department, which estimates that about 15,000 dependents are involved, has earmarked $400,000 for the first year. The regular program for overseas employees is placed at $600,000. Most of the care is provided in United States military facilities.

FEDERAL EMPLOYEES HEALTH PROGRAM

(This Year: approx. $10,000,000—Last Year: approx. $6,000,000)

Another health program, this one available to all federal civilian workers, provides limited services through health clinics. They are operated by federal agencies that employ 300 or more persons in any one area. By regulation, maximum cost of a health service cannot exceed $11 a year per employee, although special industrial conditions or minimal size unit may warrant a higher ceiling. Services include treatment for on-the-job illnesses and physical examinations for employment.

NATIONAL SCIENCE FOUNDATION

(This Year: $8,000,000—Last Year: $5,000,000)

The foundation's over-all budget of $40,000,000 is two and a half times last year's appropriation. While money earmarked for research grants in biological and medical sciences this year does not show the same proportionate increase, it is still considerably above the fiscal year 1956. The foundation, now in its sixth year, initiates and supports basic scientific research, evaluates research of government agencies, and correlates research programs of various agencies.

DEPARTMENT OF LABOR

(This Year: $7,151,126—Last Year: $7,336,000)

Bureau of Employees' Compensation.....$6,600,000

(Last year: $6,800,000)

An estimated 2,390,000 federal workers now are eligible under the Federal Employees' Compensation Act for medical and hospital care, rehabilitation services, disability and death payments, and funeral and burial expenses. For treatment of employees by private doctors and hospitalization in private facilities, Labor Department has set aside $4,500,000 this fiscal year, and for similar services in federal hospitals and clinics, $2,100,000. A slight shift is noted away from federal facilities to private resources; last year's totals were $4,349,218 and $2,234,222.

Bureau of Labor Standards.....$551,126

(Last year: $536,000)

For promotion of industrial safety, the bureau plans to spend $387,322, and for reemployment programs of the physically handicapped, $163,804. The agency develops standards for hazardous occupations, assists the states in accident prevention programs and trains personnel for administering various projects.

DEPARTMENT OF INTERIOR
(This Year: $6,138,205—Last Year: $5,770,000)

Bureau of Mines.....$5,304,300
(Last year: $5,000,000)

Bureau spending for preventive health and safety in the mines is up from last year. The total is divided this way: $3,874,300 for mine inspection and investigations; $898,000 for investigations of accidents and rescue work, and $532,000 for explosives testing and research.

Office of Territories.....$833,905
(Last year: $770,000)

Sometime after the first of the year the money earmarked for contract hospitalization at Morningside Hospital, Portland, Ore., of Alaskans judged insane will be transferred to the Territory of Alaska under Public Law 830, the Alaska Mental Health Act. This law provides that the territory, with the help of the Public Health Service, will set up its own programs for the mentally ill.

PANAMA CANAL ZONE
(This Year: $6,055,300—Last Year: $5,702,900)

The total available for health and medical programs in the Panama Canal Zone is divided: $5,452,400 for operation of three hospitals, one leprosarium, one medical clinic, two dental clinics, and six first aid stations at which zone employees, their dependents and other zone residents receive treatment, and $602,900 for public health activities and operations of the health director's office. The three hospitals have a bed capacity of 1,167.

DEPARTMENT OF TREASURY
(This Year: $3,511,700—Last Year: $2,990,000)

The Bureau of Narcotics, operating within the Treasury Department, has added responsibilities under Public Law 728, 84th Congress, for the suppression of illegal traffic in drugs, and accordingly, spending plans are up from last year. The bureau also is charged with administering the oral prescription law, Public Law 729, 83rd Congress.

DEPARTMENT OF JUSTICE
(This Year: $1,580,000—Last Year: $1,470,000)

The figure represents the Bureau of Prisons' estimate of the cost of medical and dental services for over 20,000 prisoners in 29 federal penal institutions. The bulk (about $1,490,000) goes to commissioned officers of the Public Health Service assigned to the prisons and to related civil service personnel for services that include psychiatric, surgical, and dental treatment. Another $90,000 is earmarked for fees to 220 consultants in various medical specialties.

FEDERAL TRADE COMMISSION
(This Year: $1,000,000—Last Year: $1,000,000)

The commission plans to spend about the same as last year for research, testing, and compliance operations in the field of foods, drugs, cosmetics, and devices. This is nearly 20% of the agency's total budget of $5,550,000. The FTC is charged by Congress with the safeguarding of life and health of the public through the prevention of the dissemination of false advertisements of various products.

DEPARTMENT OF COMMERCE
(This Year: $547,914—Last Year: $277,586)

Civil Aeronautics Administration.....$419,414
(Last year: $223,486)

Spending for the CAA flight safety program is well ahead of last year. It is divided as follows: $197,315 for salaries and administrative expenses at headquarters, $74,399 for similar expenses in regional office, $47,700 for the CAA Medical Research Laboratory at Columbus, Ohio, and a special grant of $100,000 to the Flight Safety Foundation. Four medical officers in the field supervise the periodic physical examinations required of commercial and private pilots. For this service, pilots pay examining physicians directly; CAA has 1,774 designated medical examiners in the United States and overseas who make about 180,000 examinations a year.

Bureau of Standards.....$128,500
(Last year: $ 54,100)

For highly specialized medical research and testing, the bureau expects to spend about $579,300 for various agencies of government; of this, $128,500 will involve Department of Commerce funds, with the rest charged to the other agencies. Projects include research on radiation protection, radiological instrument evaluation, acoustic calibration, x-ray standards, and dental materials.

CIVIL SERVICE COMMISSION
(This Year: $386,000—Last Year: $382,600)

The commission's total budget is $17,407,500, out of which little over 2% goes for running the medical division. It covers salaries for 8 physicians in Washington and 11 in the regional offices. The medical division's duties include establishing and reviewing physical standards for all civilian jobs in the federal government, supervising and adjudicating disability claims for retirement, and setting professional standards of doctors and ancillary personnel to be employed in government.

NATIONAL ADVISORY COMMITTEE TO SELECTIVE SERVICE
(This Year: $180,000—Last Year: $180,000)

The figure is the amount the committee has available for staff salaries at Washington headquarters and its 51 state and territorial offices, plus administrative costs. The committee advises Selective Service on deferment policies for physicians in residencies, teaching posts, essential laboratory and clinical research, and persons deemed necessary to protect civilian health.

PRESIDENT'S COMMITTEE FOR EMPLOYMENT OF PHYSICALLY HANDICAPPED
(This Year: $134,678—Last Year: $130,000)

Projected spending is for salaries and administration in the development and promotion of educational programs among employers to stimulate them to hire more of the physically handicapped. It also entails expenses in connection with the National Employ the Physically Handicapped Week.

HEALTH RESOURCES ADVISORY COMMITTEE
(This Year: $90,000—Last Year: $101,000)

The committee advises the director of the Office of Defense Mobilization on broad health resources problems, including medical manpower and blood and related products. The committee has the same membership as the National Advisory Committee to Selective Service.

OFFICE OF THE ATTENDING PHYSICIAN OF CONGRESS
(This Year: $12,145)

Since 1928, the Office of the Attending Physician of Congress has provided outpatient care for members of the House and Senate and their staffs. By the act of that year, the office has been filled by a medical officer of the United States Navy. Sole occupant of the post has been Rear Adm. George W. Calver, M. C., U.S.N. Funds voted by Congress are for medical supplies and equipment and contingent expenses. Salaries of the physicians and four enlisted men are paid out of Navy Bureau of Medicine and Surgery funds.

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

Intractable, Severe, Hypertensive Disease: Observations on Resistance to Treatment with Current Drugs, Denervation of the Carotid Sinuses, Hypertensive Encephalopathy, and Other Complications. I. H. Page, A. C. Corcoran and H. P. Dustan. A. M. A. Arch. Int. Med. 98:416-426 (Oct.) 1956 [Chicago].

The authors describe the case of a 28-year-old Negro woman with severe hypertensive disease of more than seven years' duration. The patient was admitted to hospital in the 55th month of the disease because of headache and vomiting. In the course of the next 31 months the patient was treated with hydralazine, alone and in combination with hexamethonium and pentolinium; and with reserpine, thiocyanate, and protoveratrine, alone and in combination with chlorpromazine, sodium azide, iproniazid, and isoniazid. Chlorpromazine did not protect the patient against the emetic action of the veratrum drugs, and her disease was not controlled by sodium azide, iproniazid, or isoniazid. She had repeated bouts of encephalopathy, each with the progression of headache, nausea, restlessness, drowsiness, and coma and each controlled by nitroprusside given intravenously for from 12 to 24 hours in amounts of from 80 to 160 mcg. per minute, which brought the diastolic blood pressure to about 100 mg. Hg, with an increase in pulse rate to about 70. She was considered to be almost completely resistant to the supine depressor effect of hexamethonium, although she remained moderately responsive to its effect on standing pressure. Denervation of the carotid sinuses by section of the right and left ninth cranial nerves was done with the hope of increasing sensitivity to the depressor effect of antihypertensive drugs. No beneficial effects were observed in this patient. A second form of hypertensive encephalopathy appeared in the late course of the disease in which unconsciousness followed on repeated grand mal seizures, which were often preceded by blindness. Consciousness, in this form of encephalopathy, was not promptly restored by nitroprusside infusion. Maintenance treatment with an anticonvulsant drug became necessary.

The responses of the patient's blood pressure to other than ganglionic blocking agents and to spinal anesthesia suggested that resistance to the depressor effect of ganglion blockers might be attributable to maintenance of the hypertension by some non-neural pressor mechanism. This last seems to be the hub of the problem of severe hypertensive disease.

Unexplained events in the course of the patient's illness were a state suggestive of hyperfunction of the adrenal cortex that occurred in the 75th month of the disease and, a little later, a transitory nephrotic syndrome. She also showed signs and symptoms of a diffuse pulmonary disease seen in patients given hexamethonium; this subsided when the drug was withdrawn, and the syndrome did not recur when the drug was given again, but residual lesions of pulmonary fibrosis were found at autopsy one year later. Despite the severe malignant hypertension present over a period of more than two years only very mild evidences of atherosclerosis were observed at autopsy in this young patient. The serum lipoprotein pattern had no distinctive characteristic that would explain the seeming protection against atheroma. The case of this patient shows that the present relative success in the treatment of severe hypertensive disease with antihypertensive drugs reported by other workers does not resolve the problem of patients who do not respond to these agents.

Cardiovascular Syndrome of Acute Pancreatitis. B. Caini and V. Modigliani. Sett. med. 44:349-354 (July 15) 1956 (In Italian) [Florence, Italy].

The authors propose the adoption of the term cardiovascular syndrome of acute pancreatitis for cases in which the peripheral shock caused by the pancreatitis is associated with myocardial disturbances that can be detected by the electrocardiogram. A 59-year-old woman with acute pancreatitis exhibited a cardiac lesion detected by the electrocardiogram. The symptoms were a severe and continuous pain, vomiting, constipation preceded by diarrhea, abnormal pulse, abnormal blood pressure, hematochemical modifications, and neutrophilic leucocytosis. Little attention was paid to the absence of ecchymotic spots in the epigastric and periumbilical regions. Ecchymotic spots and the absence of a palpable pancreatic tumefaction are not common symptoms; they appear in the most advanced stages of the disease.

The patient was operated on and was given cortisone postoperatively. She was discharged 45 days after the operation. A subsequent check-up showed that her clinical condition had returned to normal. The electrocardiographic changes are produced by four causes: (1) a state of shock with marked hypotension, followed by coronary insufficiency related to the decrease in coronary circulation; (2) a reflex originating in the diseased pancreas causes spasm of the coronary arteries; (3) the altered electrolyte equilibrium, often present in acute pancreatitis, which causes changes in the QT and the T wave; (4) the direct action of the pancreatic enzymes on the structures of the heart.

Chronic Esophagitis: A Possible Factor in the Production of Carcinoma of the Esophagus. E. B. Kay and F. S. Cross. A. M. A. Arch. Int. Med. 98:475-481 (Oct.) 1956 [Chicago].

Carcinoma of the esophagus developed in 10 patients with chronic esophagitis, 7 of whom had an associated hiatal hernia, 2 a pulsion diverticulum of the lower esophagus, and one achalasia of the esophagus. The 7 patients were from a group of 200 with hiatal hernia. The history and clinical course in all seven were quite similar and were characterized by gas, indigestion, belching, occasional episodes of dysphagia, and night pain relieved by rising. These symptoms had persisted for from 7 to 20 years. A previous roentgen diagnosis of a hiatal hernia had been made in only two of the patients. Five had a sliding hiatal hernia and two had the shortened-esophagus type. They all put off seeing their physician when difficulty in swallowing developed until the malignancy was quite advanced. In five of the patients, adenocarcinoma arising in the cardia of the stomach and extending into the distal esophagus was present, and in the other two a squamous-cell carcinoma was found with secondary invasion of the cardia.

The 2 patients with pulsion diverticulum of the lower esophagus were from a group of 12 with this condition. They had squamous-cell carcinoma arising at the level of the orifice of the diverticulum and extending into the esophagus. Pulsion diverticulum of the lower esophagus does not usually cause significant symptoms until it attains a considerable size, and then dysphagia and pain, frequently referred to the back, are noted. Both patients had a history of substernal and back pain and intermittent difficulty in swallowing. The patients had lost a considerable amount in weight and had had several episodes of hematemesis. Barium roentgen examination of the esophagus showed a large pulsion diverticulum and an irregular filling defect in the esophageal lumen at the same level. An esophagoscopic examination revealed an irregular mass at the site of the orifice of the diverticulum. The diagnosis was established by biopsy. The one patient with achalasia and carcinoma of the esophagus belonged to a group of 75 patients with achalasia.

The place of publication of the periodicals appears in brackets preceding each abstract.

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The detection of carcinoma in patients with achalasia is particularly difficult in view of the fact that dysphagia has usually existed for some time and does not increase with the development of malignancy. One of the most characteristic signs is the presence of anemia and hematemesis. Another sign was a foul odor to the breath caused by necrosis of the tumor.

Chronic irritation is generally considered to be a factor in the production of malignancy. This irritation in the esophagus may be the result of chronic ulceration secondary to lye burns or peptic esophagitis associated with hiatal hernia, or it may be bacterial as a result of stasis and infection in patients with achalasia of the esophagus and diverticulum. Though malignancy does not develop in many patients with each of these conditions, it is unwise to allow any of these conditions to persist untreated when complicated by a significant esophagitis. The existence of this complication must be acknowledged, the proper examinations frequently made, and the indicated therapy provided to eliminate chronic esophagitis in order to prevent later malignancy. No examination is complete without examining the esophagus by x-ray (only after proper cleansing) and by the esophagoscope, with the help of which the mucous membrane may be directly visualized.

Kaliopenic Nephropathy. J. W. Conn and R. D. Johnson. Am. J. Clin. Nutrition 4:523-528 (Sept.-Oct.) 1956 [New York].

Conn and Johnson collect the available evidence that chronic hypokalemia, always associated with a significant deficit of body potassium (kaliopenia), results in characteristic anatomic and functional lesions of the renal tubules. This lesion exists in the newly described clinical syndrome called primary aldosteronism. Since in the latter condition chronic hypokalemia occurs in man via a mechanism that is unique and that differs from previously recognized causes of potassium depletion, demonstration of the typical pathological and functional lesions of the renal tubules seems to relate this condition to lack of the potassium ion. Kaliopenic nephropathy must be recognized as a clinical and pathological entity. It can be induced experimentally by diets deficient in potassium. It is reproducible by repeated administration of large doses of desoxycorticosterone and is preventable when supplementary potassium is given in such experiments with desoxycorticosterone. In man, the syndrome is observed most frequently in the potassium-deficient state associated with chronic intestinal disease. It is also present in primary aldosteronism, the renal manifestations of which are analogous to desoxycorticosterone-induced "diabetes insipidus" in animals. A decreased tubular capacity to reabsorb water, not influenced by administered pitressin, is the most distinctive functional abnormality encountered in kaliopenic nephropathy. While other renal functions, too, may be impaired, hyposthenuria is disproportionately severe. Histologically, the lesion is limited to tubular cells and is characterized by diffuse hydropic vacuolarization. This anatomic lesion is observed in chronic hypokalemia in man no matter whether it is produced by long-standing diarrhea or by an aldosterone-secreting cortical tumor. In most instances both the functional and anatomic abnormalities appear to be slowly reparable after replacement of the potassium deficit. It is likely, however, that in some cases so much damage has occurred during chronic kaliopenia that functional recovery is impossible.

Nutrition in Chronic Renal Failure. A. J. Merrill. Am. J. Clin. Nutrition 4:497-508 (Sept.-Oct.) 1956 [New York].

The management of nutrition in chronic renal failure differs from that in acute renal failure in several respects: 1. The duration of the disease requires that the diet be adequate in caloric, vitamin, mineral, and protein content and that it contain proper amounts of the essential amino acids. 2. The diet must be palatable, since tube feeding is impractical and undesirable for extended periods and because a tasty diet is essential to the morale of these patients whose appetite at best may be none too good. 3. Potassium intoxication is not so common as in acute renal failure, since the urine volume is usually ample except when the patient is moribund. 4. Fluid control is not so exacting as in acute renal failure, because the urine volume can adapt itself to the intake of fluids within variable limits. Chronic renal failure affecting chiefly the glomeruli produces problems of abnormal retention of substances, whereas chronic tubular disease produces deficits principally of cations. The latter is simpler to treat, although there is a lack of adaptability to either deficits or excesses.

Water intake should be high unless water retention or edema is present. Forcing fluids in the presence of edema will cause deterioration of renal function. The salt intake should average about 4 or 5 gm. daily; it should be reduced with water retention, but few patients will tolerate rigid restriction. Massive amounts of salt may be required in unusual instances. Potassium abnormalities are treated as indicated by the blood level and excretion studies. Patients with plasma potassium levels above 5.5 Meq. per liter should be either watched very carefully or treated with a potassium-absorbing resin. Calcium deficiency without blood phosphorus elevation responds well to oral administration of calcium, vitamin D, and alkali administration (after milk-alkali administration, vitamin D intoxication, and hyperparathyroidism have been ruled out). If the blood phosphorus is high, these measures are futile and phosphorus has to be eliminated with aluminum hydroxide. The diet should contain about 0.5 gm. per kilogram of body weight of animal protein daily, supplied by a protein of high biological value, about 3 to 4 gm. per kilogram of carbohydrate and 1 to 1.5 gm. per kilogram of fat. In an addendum to this report the author presents a menu for a diet containing approximately 2,200 calories, 50 gm. of protein, and 4 gm. of salt.

SURGERY

Five-Year Postoperative Results of First 500 Patients with Blalock-Taussig Anastomosis for Pulmonary Stenosis or Atresia. B. D. White, D. G. McNamara, S. R. Bauersfeld and H. B. Taussig. Circulation 14:512-519 (Oct.) 1956 [New York].

Three hundred eighty-nine of the first 500 patients with a Blalock-Taussig anastomosis for pulmonary stenosis or atresia survived six months or longer after the operation. Sixty-seven of the 389 patients were lost to follow-up. Eleven patients who survived the operation were unimproved by their first operation. In an additional 67 patients a five-year follow-up was not completed at the time the authors' study was closed. Thus there remain 244 patients originally improved by a Blalock-Taussig anastomosis who have been followed up for five years or longer; of these, 226 obtained good results, i. e., their exercise tolerance was virtually normal and their hearts were stationary in size, with a cardiothoracic ratio of 60% or less. The hemograms were also stationary, with a maximum red blood cell count of 6,500,000, a maximum hemoglobin of 17 gm., and a maximum hematocrit reading of 55 volumes per 100 cc. Eighteen obtained fair results from the first anastomosis. The good results were maintained in 163 patients (67%) five to eight years after the operation, and in 16 patients (7%) the results were still fair after this lapse of time. Nine patients (4%) were no longer improved, and 23, i. e., 9% of those originally improved, required and survived a second operation.

Thirty-three patients (14%) died between six months and eight years after the operation. A higher percentage of patients with tetralogy of Fallot maintained good results postoperatively than of those with other malformations of the heart, and the mortality rate was significantly lower in the former group. One hundred twenty-six of the 163 patients with good results who were evaluated for changes in cardiac size, changes in the hemogram, and, whenever possible, changes in the arterial oxygen saturation, were in excellent condition in all respects. Twenty-three of the 163 patients had considerable nonprogressive cardiac enlargement. Fourteen patients had moderate and nonprogressive polycythemia. In most of these patients a good continuous murmur, which indicates that some blood is flowing from the aorta to the lungs, was observed. The best results were obtained in children who were between the ages of 8 and 12 years at the time of the operation. Subacute bacterial endocarditis was diagnosed in 15 (6%) of the 244 patients in the late postoperative period. Twenty-three of the 226 patients who originally obtained good results died, a late mortality rate of 11%, whereas 8 (44%) of the 18 patients who had obtained only fair results died. Of the 33 patients who died, 19 were no longer improved, 6 were losing ground, and 8 were doing well at the time of death. No patients with a tetralogy of Fallot died of cardiac failure.

These findings suggest that the optimum age for operation is between 8 and 12 years; 80% of the patients in this age group maintained their improvement five to eight years after the operation. The risk of postoperative subacute bacterial endocarditis, although real, is not great. Patients in whom the red blood cell count remains below 6,500,000, the hemoglobin below 17 gm., and the hematocrit below 55 per 100 cc. have an excellent long-term prognosis. A patient with these findings who has a tetralogy of Fallot and a cardiothoracic ratio of 50% or less has a particularly favorable prognosis.

Arterial Disease as a Cause of Pain in the Buttock and Thigh. G. Bonney. J. Bone & Joint Surg. 38-B:686-691 (Aug.) 1956 [London, England].

When a patient attends an orthopedic clinic with the complaint of pain affecting the calf of the leg, the possibility of arterial disease as a cause of the pain is usually remembered, but, when the pain is in the buttock or thigh, that possibility is often overlooked. Ten patients are reported on in whom pain due to arterial obstruction simulated pain caused by bone or joint disease or by disorder of the intervertebral disk. All patients had been considered to be suffering from conditions such as osteoarthritis of the hip or lumbosacral disk degeneration and had received treatment accordingly. Mistakes in the diagnosis may not only lead to mistaken treatment but may also cause delay in giving correct treatment and may lessen the chances of success. The pain differs only in site, not in character, from that affecting the calf in classic intermittent claudication. Palpable tibial pulses do not exclude a diagnosis of vascular insufficiency in the lower limb. In three of the patients claudication was present with palpable tibial pulse. In all of these the tibial pulse became impalpable after exercise to the point of pain. Ischemic changes in the peripheral parts of the limb are not necessarily a feature in these cases of proximal arterial obstruction. Only 1 of the 10 patients had marked peripheral ischemic changes. Radiography, by showing calcification in the site of the great vessels, is often a useful pointer to the diagnosis. It is suggested that in orthopedic clinics, where attention is often directed largely to skeletal abnormalities seen on radiographs of the lumbar spine, closer search for evidence of aortic or iliac calcification might be rewarding. Aortography was performed in most of the 10 patients and revealed occlusion either at the aortic bifurcation or of the iliac vessels.

Cancer of the Breast, 1661 Patients: I. Considerations in Future Therapy. R. C. Hickey, H. D. Kerr, R. T. Tidrick, and others. A. M. A. Arch. Surg. 73:654-660 (Oct.) 1956 [Chicago].

This series of 1,661 patients with breast carcinoma represented the recorded patient material for 24 years at the University Hospitals, State University of Iowa. The standard therapy for breast cancer was radical mastectomy, which was employed in 913 operable cases. Supplemental roentgen therapy was given in some of these cases. At five years from diagnosis, the over-all survival rate among the 1,661 patients was 36.8%. The five-year survival rate among all the patients treated by radical mastectomy was 46.8%. The five-year survival rate was 68.7% when the axillary nodes were free of cancer at the time of operation and 33.1% when they showed involvement. Roentgen therapy offered no measurable benefit in terms of survival and pattern of first recurrence; in general, these cases were clinically more unfavorable. Recurrence was most frequent locally and in the axilla. Local recurrence is discouraging, because this area is presumably cleared by radical mastectomy. Even when recurrence was delayed for 10 years, it was frequently local. The author feels that this reflects the biological characteristic of breast cancer rather than poor surgery. Furthermore, the first appearance of a distant metastasis was unpredictable, in that it sometimes occurred early even in patients in whom the cancer was presumably limited to the breast. The classic radical mastectomy should not be abandoned as yet. Techniques should be improved, and patients to be treated by radical mastectomy should be selected more carefully. Superradical surgery should be considered as a clinical experiment. It is hoped that public education to facilitate early diagnosis and prompt surgical treatment will lead to better results.

Comparison of Radical and Less Extensive Surgery in Cancer of the Breast. W. C. White. Am. Surgeon 22:942-947 (Oct.) 1956 [Baltimore].

The author prefers radical mastectomy, which he performed in 290 patients, to less extensive surgery in cancer of the breast. There were three surgical deaths. Of 134 patients without axillary metastases, 107 or 80% were alive after five years, whereas, of 153 with axillary metastases, 48 or 31% were still alive after five years. The over-all five-year survival rate was 53%. Radical mastectomy had been accepted for many years as an excellent procedure, but some surgeons believe that the Halsted procedure is not extensive enough, while others maintain that it is needlessly extensive, and even harmful. Superradical surgery involves greater operative risk than the other methods, and is not based on a clear-cut anatomic and pathological consideration. McWhirter advocates simple mastectomy followed by sterilizing roentgen irradiation of the regional lymph nodes. With this treatment he obtained a crude five-year survival rate of 58%.

In spite of the apparently similar survival rates in his own and McWhirter's case material, the author still believes that the radical Halsted procedure is preferable to McWhirter's method, although he feels that there is need for improvement in the treatment of patients with axillary metastases. In addition to surgery, aid for these patients may take the form of x-ray therapy, hormonal gland excision, testosterone therapy, or perhaps one of the new chemical compounds.

Preservation of Rectum in Familial Polyposis of the Colon and Rectum. S. T. Coleman and C. Eckert. A. M. A. Arch. Surg. 73:635-644 (Oct.) 1956 [Chicago].

Thirteen patients with polyposis of the colon are presented. Several of the patients were related to one another and others had blood relatives with polyposis of the colon and rectum. Familial polyposis is usually progressive. New polyps form, and in any one of them cancer may evolve. Total colectomy with proctectomy is the only means of freeing the patient from the risk of cancer. A single surgical procedure cannot meet the requirements in all patients, because of the different clinical situations encountered and the difficulty of predicting the rate of progression.

The authors have continued to employ total colectomy and ileoproctostomy and thereafter to control any polyps that may form subsequently within the rectum by endoscopic removal and fulguration. Ileoproctostomy may be employed when there are no polyps within the rectum or their numbers are small, that is, when the greater part of the rectal mucosa is normal. Cancer of the rectum, large sessile polyps, or total involvement of the mucous membrane of the rectum are obvious contraindications to the preservation of the rectum. If ileoproctostomy is to be done, there must be assurance of cooperation on the part of the patient if the rectum is to be preserved in familial polyposis, because regular follow-up examinations must be carried out, with prompt removal of polyps as they appear. If the surgeon is doubtful about the patient's cooperation, preservation of the rectum should not be considered. There were no surgical deaths in the 13 patients, but one patient had intraperitoneal abscesses, and mechanical intestinal obstruction developed in 2 others. Intestinal function is excellent in 12 patients, but one patient has involuntary stools at night. Colectomy does not appear to retard growth or physical development when carried out in childhood.

NEUROLOGY & PSYCHIATRY

The Treatment of Tuberculous Meningitis. H. V. Smith and R. L. Vollum. Tubercle 37:301-320 (Oct.) 1956 [London, England].

Two hundred thirty consecutive unselected cases of tuberculous meningitis were treated at Oxford and observed for at least one year. The first 80 patients were treated with streptomycin alone, and the survival rate was 52%. The next 70 patients also received streptomycin, but in addition certain patients were treated with intrathecal injections of the purified protein derivative of tuberculin (PPD). The survival rate rose to 61%. The

last 80 patients received intrathecal injections of purified protein derivative of tuberculin routinely, except when some special contraindication was present, and the survival rate rose to 75%. The use of purified protein derivative of tuberculin is potentially dangerous, as it must be given in sufficient doses to provoke a reaction, which consists in an abrupt though temporary worsening of the meningitis. The patient is pale and drowsy; he vomits and, if sufficiently conscious, complains of headache and pain in the back. The temperature and intracranial pressure, rise while the physical signs and mental changes become more marked. This clinical disturbance usually begins 8 to 12 hours after the injection of purified protein derivative of tuberculin and lasts 12 to 36 hours. The clinical disturbance is the price that must be paid for the meningeal reaction. Early in treatment the intensity of the clinical component tends to outstrip that of the cerebrospinal fluid component, but after a few reactions this relationship is reversed and brisk cerebrospinal fluid reactions can then be obtained at the cost of only a mild and transient clinical upset.

Measures designed to minimize the danger of the reaction are discussed. Cortisone has proved lifesaving in a few carefully selected cases. As, however, it is in many respects antagonistic to tuberculin, it has seldom been used with this treatment. It is concluded that intrathecal medication is still required for the optimal treatment of tuberculous meningitis; that purified protein derivative of tuberculin is a useful adjuvant to the chemotherapy; that these cases are best treated at special centers; and that, if the very advanced cases could be eliminated by earlier and more accurate diagnosis, recovery could be expected in approximately 100% of cases.

Pheochromocytoma and Electroconvulsive Therapy. F. R. Drake and F. G. Ebaugh. Am. J. Psychiat. 113:295-301 (Oct.) 1956 [Baltimore].

The authors present the history of a 34-year-old woman who died from cardiac arrest following electroconvulsive therapy. Autopsy revealed pheochromocytoma of the left adrenal. The case is presented so that other psychiatrists may become more aware of a tumor that can produce symptoms similar to those found in various anxiety states with or without depression. The diagnosis was particularly difficult, as no paroxysm of hypertension was ever detected. In addition, there was no sustained hypertension to arouse suspicion. Although a little atypical, the patient's signs and symptoms suggested a tension depression. Pheochromocytoma is an absolute contraindication to electroconvulsive therapy.

Tight Filum Terminale. P. H. Jones and J. G. Love. A. M. A. Arch. of Surg. 73:556-566 (Oct.) 1956 [Chicago].

A review of the records of 442 patients with spina bifida occulta seen at the Mayo Clinic in the past decade disclosed 6 with tight filum terminale. The histories of these patients, of whom four were children from 3 to 12 years of age and two were adults aged 35 and 34 years, are presented. Most of them had sphincteric and locomotive difficulties that began in childhood and were progressive. Difficulty with micturition was common. Three of the four children and one of the adults had enuresis or urgency of micturition, or both. The urinary difficulties of one patient were worse in the morning. Another child had retention with overflow; improvement occurred after severance of a taut filum terminale. All six patients had locomotive difficulties. One girl had to stop attendance at ballet classes because of increasing inability to perform fine movements. One woman walked with a limp of the right leg. Another had noted weakness and atrophy of the left leg since the age of 4 years. By the time she reached high school age, the weakness had increased and pain had appeared in the same leg. In the ensuing years, weakness progressed and numbness commenced. The pain was aggravated by coughing and sneezing. There was limping and stumbling when walking. One girl complained of difficulty in using the left leg and stiffness of the knees. A boy had clawing of the toes of the right foot and stiffness of the knees during the two years before admission.

Stigmas of spina bifida were present in five patients. Increased quantities of hair were noted in three, a fat pad in two, and a fovea sacralis in another. A meningocele was present in one child. Roentgenograms of the lumbar spine revealed spina bifida in each patient. A tight filum terminale must be differentiated from other congenital anomalies and tumors and degenerative and inflammatory diseases. When progression of symptoms is seemingly from childhood and is accentuated at puberty, an anchoring of the spinal cord by a tight filum terminale is a strong possibility, and any patient with symptoms and signs of a progressive lesion should be subjected to surgical exploration. In each of the six patients presented, an intradural lumbosacral exploration was made and the tight filum terminale was resected. The results of the operations were gratifying. Recovery seemed commensurate with the severity of the preoperative symptoms and signs.

Carbohydrate Metabolism and Nutritional State in Multiple Sclerosis. H. Droller and I. J. N. Powell. J. Chron. Dis. 4:283-291 (Sept.) 1956 [St. Louis].

Observations in the course of glucose tolerance tests and on pyruvic acid levels had suggested that a disturbance of the carbohydrate metabolism played a part in multiple sclerosis. The pyruvic acid levels were considered particularly important because they implied a thiamine deficiency. The diphosphate of thiamine (cocarboxylase) is required for the decarboxylation of pyruvate, and, in its absence, glucose oxidation stops at the pyruvic acid level. Pyruvate then accumulates in tissues and blood. An investigation was undertaken into the nutrition and carbohydrate metabolism of 10 patients with multiple sclerosis who subsisted on diets of their own choice. There were five men and five women. The general level of nutrition was poor, the intake of fat and protein was low in both sexes, and the carbohydrate intake was low in women. The thiamine and niacin of the diet appeared adequate. The observed patterns of abnormal glucose tolerance tests corresponded to those seen in starvation and could be rectified by glucose feeding. Diabetes was discovered in one of the patients after glucose feeding. There was no biochemical evidence of thiamine deficiency in these patients subsisting on poor diets, but temporary thiamine deficiency developed in one patient after extra loading with glucose. Glucose tolerance curves, following the administration of thiamine and cocarboxylase, respectively, were of similar pattern. Cocarboxylase and thiamine had no therapeutic value.

GYNECOLOGY & OBSTETRICS

Corticotropin in Severe Infections and in Postoperative Disease in Gynecology. P. Alfieri. Minerva ginec. 8:387-392 (May 15) 1956 (In Italian) [Turin, Italy].

Three patients with peritonitis, one with postembolic pneumonia, and two with postoperative syndrome were treated with small doses of corticotropin, 10 mg. every six to eight hours. Treatment lasted for from three to five days. The results were good and in some cases they were very good. There were no untoward side-effects. Antibiotics and vitamin C were combined with the hormonal treatment.

Ulcerative Colitis and Pregnancy. I. Macdougall. Lancet 2:641-643 (Sept. 29) 1956 [London, England].

This report concerns 100 pregnancies in 64 women among 398 patients (244 women and 154 men) with ulcerative colitis who attended the Gordon Hospital in eight years ending June 30, 1955. The ulcerative colitis began during or immediately after the pregnancy in 26 of the 64 women. A high proportion of these women had a severe form of ulcerative colitis. A quarter of all women with ulcerative colitis who had been pregnant had their first attack during either pregnancy or the puerperium. Inactive colitis was unaffected by pregnancy. Active colitis was improved in one-half, unaffected in a quarter, and aggravated in a quarter of the pregnancies. The proportion relapsing rises to a third when the puerperium is included in the time of onset of the ulcerative colitis. Successive pregnancies do not have a consistent effect on ulcerative colitis. Ulcerative colitis does not adversely affect pregnancy. The most interesting feature of the behavior of ulcerative colitis complicated by pregnancy is the high proportion of women who

experience a remission. In this a parallel could be drawn with rheumatoid arthritis, which responds to pregnancy in the same way. The link may be hormonal, for there is strong evidence that a large percentage of patients with ulcerative colitis give a good clinical response to treatment with either cortisone or corticotropin, and this is rather like the way the condition reacts to pregnancy.

The "Fern Test" of the Cervical Mucus as a Pregnancy Test. K. J. H. Verschoof. Nederl. tijdschr. geneesk. **100**:2578-2583 (Sept. 8) 1956 (In Dutch) [Haarlem, Netherlands].

The formation of crystals in the dried mucus of the cervix uteri was first pointed out by Papanicolaou in 1946. The crystals appear in a palm-leaf or fern-leaf pattern during the follicular phase of the menstrual cycle, when the cervical mucus is watery, light, and transparent. The test has been variously designated as the crystallization, arborization, fern-leaf, or palm-leaf reaction of the cervical mucus. The uterine cervix, like the endometrium, undergoes cyclical changes. During the follicular phase (from the 5th to the 22nd day) of the cycle, under the influence of estrogenic substances, crystallization is evident in the dried cervical mucus, but after the corpus luteum forms, and the formation of progesterone becomes dominant, crystallization (fern-leaf) formation is inhibited and the fern test becomes negative. Now the dried mucus shows cells only and is devoid of crystals. The same is true during pregnancy, the dried mucus is cellular, showing no crystals. If crystals in fern-leaf arrangement are found in the cervical mucus, there is no pregnancy. Several case histories are presented that illustrate the value of the fern-leaf pregnancy test.

Transplacental Passage of Vitamins A, E, and D_2 Injected Intravenously in the Mother. R. Decio and V. Alamanni. Minerva ginec. 8:381-387 (May 15) 1956 (In Italian) [Turin, Italy].

Water-soluble preparations of vitamins A, E, and D_2 were administered intravenously to pregnant women. The quantities present in the blood of the mother and of the fetus were then measured. The values of vitamin A that passed into the fetus were of from 50 to 62.5%, the values of vitamin E were of from 88 to 100%. Values were of from 45 to 47% and of from 20 to 23% respectively when the two vitamins were given intramuscularly. The passage of vitamin D into the fetus could not be measured exactly; however, the authors advanced the hypothesis that it could reach values of 100%.

PEDIATRICS

Miliary and Meningeal Tuberculosis: Difficulties in Diagnosis. R. S. Illingworth. Lancet **2**:646-649 (Sept. 29) 1956 [London, England].

Illingworth fears that the decline in the incidence of miliary and meningeal tuberculosis may lead to a lessened awareness of these conditions as possible causes of a child's illness. The early diagnosis of tuberculous meningitis is vital; for with early treatment one can guarantee a recovery rate of over 90% without sequelae, whereas, if the treatment is delayed until the child is unconscious, the risk of death or of serious consequences is greatly increased. The author describes some of the diagnostic difficulties in 236 cases under his care in the Children's Hospital, Sheffield. One hundred ninety-two of these children were admitted with meningitis and 43 with miliary tuberculosis (of whom 13 developed meningitis while in hospital). The following factors are listed as the chief causes of difficulties in the diagnosis of miliary and meningeal tuberculosis: 1. The vagueness of the initial symptoms: the commonest were tiredness, irritability, and loss of appetite. Nutrition may be good, and the child may be neither feverish nor drowsy. Headache and vomiting were usually late symptoms. 2. In 18% of the children there was a history of an injury or infection immediately before the onset of symptoms. 3. In 25% meningism was absent. 4. In 42% a tuberculin-jelly test was negative. The Mantoux reaction was also frequently negative; in some it gave a confusing delayed reaction. 5. In 14% the initial level of sugar in the cerebrospinal fluid was 50 mg. per 100 ml. or more. 6. In eight children the meningitis was both purulent and tuberculous. 7. In some cases, proved at autopsy to be miliary tuberculosis, nothing abnormal had been seen on x-ray examination.

The author suggests that a Mantoux test (1 in 1000), and not a tuberculin-jelly test, be carried out when tuberculous meningitis is suspected. Particular importance is attached to a positive result in a child recently exposed to tuberculosis, for meningitis is more likely to develop in the six months after exposure than at any other time; and a positive result in a child under 2 years of age should always be taken as signifying active tuberculosis. At the same time a lumbar puncture is done, and, though usually the cerebrospinal fluid sugar level is 10 to 40 mg. per 100 ml., there are occasional variations. By a proper technique, acid-fast bacilli will be found in the smear in 90% of cases of tuberculous meningitis, and in the remaining 10% the organism will eventually be demonstrated by culture and guinea pig inoculation. The chest is examined with x-rays with the knowledge that a normal roentgenogram does not exclude tuberculosis. The diagnosis is then weighed in the light of the history, the physical examination, and the special investigations.

Clinical Features of Children Suffering from Neurological Sequelae of Rh Iso-Sensitization. C. Burton-Bradley. Australasian Ann. Med. **5**:203-213 (Aug.) 1956 [Sydney, Australia].

While investigating the obstetric and developmental histories of children who were brought to the Spastic Center, New South Wales, three mothers stated that their affected child had suffered from jaundice at birth. Arrangements were made with the Red Cross Blood Transfusion Service for Rh investigations to be carried out in all cases of cerebral palsy as a routine etiological investigation. Eighteen children are here reviewed, who were brought along with many other cerebral palsied children to the Spastic Center outpatient department in search of help. All presented with varying degrees of slowness in the acquisition of sitting, standing, walking, and speech. The ages at which these 18 patients were presented ranged from 8 months to 8 years. Fourteen of the 18 children with icterus gravis neonatorum had been given blood transfusions, and 4 had not. The present age range of the patients is 5 to 14 years. Athetosis, high-frequency deafness, hypoplasia of the enamel of deciduous teeth, defective upward eye motion, specific peculiarities of gait, and discrepancy between estimable intelligence quotient and learning capacity are features. Seventeen patients are athetoids. In electroencephalographic investigations, 13 patients have normal records, 1 is borderline normal, and 4 have abnormal reccords.

Complications Following Intravenous BCG Vaccination of New-Born Infants: Re-Examination Three and One Half Years After Vaccination. M. R. H. Stoppelman and E. F. Drion. Nederl. tijdschr. geneesk. **100**:2584-2591 (Sept. 8) 1956 (In Dutch) [Haarlem, Netherlands].

Of 1949 children who had been vaccinated during the neonatal period by intracutaneous administration of BCG, 1,608 could be reexamined 3½ years later. The Mantoux test in a dilution of 1:100 was positive in from 87.5 to 98% of all children. On the basis of the method of vaccination, the children fell into three different groups. Those of group 1 received two injections of 0.1 ml. of BCG vaccine; those of group 2 received two injections of 0.05 ml.; and those of group 3 received two injections of 0.03 ml. Suppuration of the regional lymph nodes occurred in 26.6% of the children of group 1; in 7.1% of those of group 2; and in 3.1% of those of group 3. In many children suppuration of one or more of the regional lymph nodes began 10 months or longer after BCG vaccination. Six children showed enlargement and seven showed suppuration of the regional lymph nodes 3½ years after BCG vaccination. In five children pus was aspirated and examined bacteriologically, but no acid-fast bacteria were isolated. Statistically significant differences were observed with regard to frequency of complications as well as with regard to negative tuberculin reactions in children grouped together according to the date of vaccination. The cause of these differences cannot be

definitely established, but it is pointed out that studies in France revealed that vaccines prepared on different dates by the same laboratory were of varying potencies.

Early Puberty Due to Granulosa Cell Tumor of the Ovary. J. Picañol. Rev. españ. pediat. 12:309-318 (May-June) 1956 (In Spanish) [Zaragoza, Spain].

Granulosa cell tumors of the ovary are relatively frequent in women but very rare in girls of the prepuberal age. A girl began to menstruate at the age of 6 years. After the third menstruation there was scanty bleeding for 10 days. The child was undersized and underweight. Her mental and skeletal development were retarded. The abdomen was distended, the breasts were slightly enlarged and the areolas were pigmented. A free hard tumor was palpable at the hypogastrium. The uterus was enlarged, as felt by rectal palpation. Vaginal smears showed folliculin modified cells. There were no symptoms of virilism. A laparotomy revealed a large ovarian cyst. The removed cystic ovary measured 10 by 8 cm. The cystic fluid contained granulosa cells with marked lutein differentiation. Treatment against hypothyroidism was established two weeks after the operation. Menstruation did not occur any more. The breasts diminished in size and the areolas lost their deep pigmentation. A follow-up of 15 months revealed the child to be in good condition. Her weight, size, and skeletal development have greatly improved.

UROLOGY

Radium Therapy of Malignant Tumors of the Bladder: New Technic and Results. R. Darget. J. Internat. Coll. Surgeons 26:435-439 (Oct.) 1956 [Chicago].

One hundred one patients with malignant tumor of the bladder were given radium therapy in France between 1942 and 1954. Twenty of the 101 patients had a tumor that did not invade the submucosa (type 1), 50 had an extensive tumor situated near the ureteral orifices (type 2), and 31 had very serious malignant lesions that had invaded one-third to one-half of the bladder, with involvement of the ureters and the renal pelves (type 3). A five-year cure was obtained in 16 and a three-year cure in 17 of the 20 patients with type 1 tumor. A five-year cure was obtained in 32 and a three-year cure in 34 of the 50 patients with type 2 tumor. Results were less satisfactory in the patients with type 3 tumor, but their prognosis was the least favorable one. A five-year cure was obtained in a total of 49 of the 101 patients and a three-year cure in 53. When a patient had survived three years he had the best chance of a permanent cure.

The results obtained do not conform to the concept of other workers that the efficacy of radium therapy is necessarily limited to "favorable cases," i. e., in patients in whom the tumor has not invaded the bladder wall. The procedure used by the author for the treatment of all three types of malignant tumor of the bladder is as follows: 1. The radium needles must be accurately placed; a wide cystostomy, therefore, is required. Before the needles are inserted, the tumor is leveled as deeply as possible with the aid of surgical diathermy. 2. The radium needles must be kept in place during the entire period of radium therapy. This is best accomplished by reducing the automatic contractions of the bladder with procaine hydrochloride infiltration of the nervi erigentes and the pudendal nerves before the operation. 3. A special rubber balloon filled with a saturated solution of lead nitrate is placed close to the needles; this device prevents the needles from moving and acts as a screen against irradiation. 4. The radium needles are left in place for three or four days, and the cystostomy is maintained for about four weeks before the bladder is closed. 5. Extraperitonealization of the bladder makes operating much easier in cases in which the tumor is deeply situated and is difficult to expose. Extraperitonealization permits intravesical and extravesical implantation of radium to be done simultaneously. The ureters are exposed at the level of the superior strait. If the tracts appear greatly enlarged and unhealthy, a bilateral cutaneous ureterostomy is performed and the ureters fixed side by side at the median line, which permits convenient collection of the urine. When the condition of the kidneys and the ureter remains doubtful, a simple ureterostomy is performed on each ureter and a plastic ureteral sound of sufficient caliber is inserted and is pushed up to the renal pelvis. This drainage is maintained until the exact condition of the kidneys and whether they are capable of improvement becomes known. The simple ureterostomy will then be replaced by either a cutaneous ureterostomy or a ureterointestinal anastomosis.

The Present Position of Radical Cystectomy in the Surgical Management of Carcinoma of the Urinary Bladder. V. F. Marshall and W. F. Whitmore Jr. J. Urol. 76:387-391 (Oct.) 1956 [Baltimore].

About 200 radical cystectomies for cancer of the urinary bladder have been performed in the departments with which the authors are connected. This report is concerned with the first 100 patients, who were operated on more than four years ago. The term radical cystectomy, as employed in this paper, includes even pelvic exenteration, 53% of the patients actually having undergone exenteration. Of the first 100 patients undergoing radical cystectomy, 41 lived four years after their first symptom of bladder tumor and 19 lived four years after the operation. The survival of these patients as a group was far less than their calculated average actuarial expectancy. Only about 4% of patients with untreated bladder cancer of high grade and stage survived four years from the first symptom. The authors gained the impression that the survival rates after radiation of carcinoma in stages C and D were quite low—much less than after surgical therapy. They are of the opinion that radical total cystectomy is advisable when the following combination of circumstances exists: (1) the cancer has extended through the muscle layer but cannot be demonstrated, even by laparotomy and nodal dissection, to have metastasized (i. e., cancers in stage C); (2) at least part of the neoplasm is located in the basal or rectal half of the bladder; (3) the patient would appear to have a life expectancy of four or more years if the cancer were not present; and (4) adequate facilities are available. Other circumstances may also warrant the use of this radical technique; but the above combination appears the most clearly defined, and it has not been a rare combination in the experience of these authors.

THERAPEUTICS

The Effect of Chlorpromazine on Hepatic Function and Morphology. J. K. DeVore, C. Daugherty and E. M. Schneider. Gastroenterology 31:391-398 (Oct.) 1956 [Baltimore].

Laboratory and liver biopsy studies were made on 12 patients who were being treated with chlorpromazine. Eight of the patients had received chlorpromazine in daily doses of from 1,500 to 3,500 mg. for 183 days without showing signs of jaundice. Hepatic function tests and liver biopsies failed to reveal any striking changes or consistent pattern that might suggest drug-induced abnormalities. The four patients in whom jaundice did develop had received considerably less chlorpromazine over much shorter periods of time than the nonicteric group. Liver biopsy performed on three of the four subjects with jaundice revealed plugging of the bile canaliculi. In two instances periportal infiltration occurred, and in the third instance irregular reduction of intracellular glycogen was noted. Laboratory studies in all four subjects reflected no hepatocellular dysfunction. The most notable abnormalities were increases in total serum bilirubin and in the serum alkaline phosphatase. However, more striking than these changes noted during the acute phase of jaundice was the fact that in every instance the cholesterol ester fraction increased as the patient's jaundice decreased. This occurred despite the fact that in two of the four subjects a "normal" cholesterol ester–total cholesterol ratio existed throughout the period of icterus. The alkaline phosphatase–total cholesterol ratio was abnormally high in three of the four subjects and may be of value as an index for the early diagnosis of intrahepatic obstructive jaundice. It is interesting to note that the jaundice cleared rapidly in all subjects despite the continued administration of chlorpromazine. A majority of the cases of chlorpromazine jaundice reported in the American and British literature similarly showed no evidence of hepatocellular dis-

ease but did reflect a picture of "intrahepatic obstruction." It is concluded that chlorpromazine is not a specific hepatotoxin but is capable of eliciting unpredictable hepatic responses in susceptible patients.

Cortisone Therapy in Hepatic Cirrhosis. L. Bárbera. Riforma med. **70**:1086-1090 (Sept. 22) 1956 (In Italian) [Naples, Italy].

Nineteen patients with hepatic cirrhosis were treated with cortisone or prednisone. Five patients received cortisone by mouth in doses of 100 mg. per day for the first 10 days and of 75 mg. per day for the following days. Nine patients received prednisone by mouth in doses of 20 mg. per day for at least 30 days. The doses were always equally divided throughout the 24 hours. Except for some cardiotonic drug, no other substance was added to the cortisone or to the prednisone. Bilirubinemia diminished and diuresis increased. Extreme oliguria (150 to 200 cc. of urine per day) was converted into polyuria of up to 3,000 cc. of urine per day. The following results were observed: the total protidemia varied moderately; there was a tendency toward the correction of disprotidemia even in patients who showed a decrease of total protidemia caused by hormonal treatment; and albumin and beta globulin tended to increase and gamma globulin to decrease. A transitory improvement marked by the return of consciousness was observed twice in two patients with hepatic coma.

Acute Glomerulonephritis Treated with Prednisone. L. Bertoni. Riforma med. **70**:1091-1094 (Sept. 22) 1956 (In Italian) [Naples, Italy].

The author reports on seven patients with glomerulonephritis treated with prednisone. Good results followed in six patients. A marked effect was obtained in patients with the disease in acute or initial stages. Clinical symptoms tended to disappear and the urine became normal; the course of the disease was shortened considerably. The results were negative in a patient with a subchronic form of glomerulonephritis. The author believes that the effect of prednisone is more antireactive than antiphlogistic. The danger presented by old cortisone drugs of increasing the retention of water and salt in patients whose kidneys are diseased has been overcome by new cortisone derivatives.

Hypertension Treated with Rauwolfia Canescens: A Comparison with Rauwolfia Serpentina. R. W. P. Achor and N. O. Hanson. New England J. Med. **255**:646-650 (Oct. 4) 1956 [Boston].

The authors investigated by clinical trial whether Rauwolfia canescens possesses any advantages over R. serpentina in the treatment of essential hypertension. Nineteen patients were selected from those who had participated in a previous study in which R. serpentina (whole root) was compared with reserpine in the treatment of hypertension. All were ambulatory patients whose average blood pressure exceeded 165 mm. Hg systolic, 90 mm. Hg diastolic, during an observation period of three or more months before the study. There did not appear to be any striking differences between the effects of the whole-root preparation of R. canescens and those of a similar preparation of R. serpentina. This similarity of results pertained not only to effects on blood pressure and pulse rate but also to side-effects. If any difference existed, it was that R. canescens tended to have fewer and less severe side-effects. In particular, it seemed to have less sedative effect than R. serpentina. Depressive reactions that have been observed among hypertensive persons treated with preparations of R. serpentina are also associated with the use of R. canescens. Continued use of R. canescens was well tolerated over a period of eight or nine months, and only when the dosage was increased did more troublesome side-effects develop. In patients who initially obtained a satisfactory reduction of blood pressure—about 40% of those treated—it was possible to maintain this improvement even though the dose was cut by half and given once daily instead of twice. There was no evidence in this group of the development of "resistance" to the drug. Patients whose blood pressure was not lowered appreciably by the use of R. canescens in moderate doses did not respond significantly when the doses were increased by 50%. This suggests that, if there has not been a satisfactory reduction in blood pressure after two months of treatment with moderate doses of R. canescens, it is unlikely that an increase in the dose will result in further benefit. If a good reduction of blood pressure has been obtained, it seems reasonable to expect that decreased dosage of the drug may continue to maintain the good response as well as to lessen the frequency and severity of side-effects. R. canescens is a potent pharmacological agent whose use should be carefully supervised.

PUBLIC HEALTH

Human Exposures in Populated Areas During Airplane Application of Malathion. P. E. Caplan, D. Culver and W. C. Thielen. A. M. A. Arch. Indust. Health **14**:326-332 (Oct.) 1956 [Chicago].

A joint study was undertaken during the summer of 1955 by the California State Department of Public Health and the U. S. Department of Agriculture to determine the feasibility of using aerial applications of malathion on populated areas to control adult mosquitoes. Because such applications would mean communitywide exposures to an organic phosphate insecticide, the magnitude of the exposure involved in this type of operation was investigated. Malathion was applied over the small community of Planada (population 1,500) in the Central Valley of California. The spray material, containing 7.5% technical malathion, 4% no. 40 motor oil, 22% Shell solvent no. 2, and 66.5% medium grade diesel oil, was applied at the rate of 0.46 lb. of malathion per acre from an altitude of 70 ft. It was discharged through no. 4 spray nozzles from a boom under the wing of a light airplane. Human exposure was measured by ir-sampling and surface-deposit measurement techniques. These measurements were made in the open and inside buildings. The spray had a mass-median diameter of 109μ. Comparison of air-sample measurements with surface-deposit measurements indicates that air sampling measured only 12% of the insecticide present in the outdoor atmosphere. This 12% probably represents inspiratory exposure. A man working in the open received an inspiratory exposure about five times greater than that of a man working inside a building. The outdoor skin exposure was roughly four times the indoor exposure. During the complete operation of airplane spraying of a small town, the total exposure of a man working outdoors was such that, when calculated on a milligram per kilogram basis, his inspiratory and skin exposures would have had to be multiplied by factors of 500,000 and 120,000, respectively, to approach $L.D._{50}$'s of experimental animals. On the basis of these findings, the application of malathion in amounts used in this study constitutes no hazard to the normal human population.

Antigenic Potency of Poliovirus Vaccines. S. Kelly and G. Dalldorf. Am. J. Hyg. **64**:243-258 (Sept.) 1956 [Baltimore].

The commercial vaccines used in the state of New York during the summer and fall of 1955 were evaluated by Gard's method and the results related to other potency values, e. g., ratio value in the monkey potency test, and antigenic response in man. Some of the factors influencing estimates obtained by the test were also studied. Potency differences were detected varying from a few vaccines with no detectable potency to a few with high potency, with up to six-hundred-fold differences between these extremes. Many vaccines appeared to have greater type 3 than type 1 antigenicity. Vaccines potent by the guinea-pig test were also potent by the monkey test. The differences in potency apparent in the animal tests were not detected in a small-scale study of the serologic response of human beings to the vaccines. Factors found to influence potency values occurred chiefly in the neutralization test and included size of virus dose, choice of tissue-culture indicator, and length of observation period. Factors found to exert little or no effect on antibody production were animal weight and sex. Storage of serum at refrigerator temperature and in a frozen state before testing did not affect potency values. Vaccines stored for several months had potency values that were lower than previously estimated values. The authors also describe a simplified modification of Gard's test.

BOOK REVIEWS

Athletic Injuries: Prevention, Diagnosis and Treatment. By Augustus Thorndike, M.D., Chief Surgeon to Department of Hygiene and Department of Athletics, Harvard University, Boston. Fourth edition. Cloth. $4.50. Pp. 252, with 113 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1956.

The appearance of a new edition, the first in eight years, of this valuable work, originally published in 1936, coincides with greatly increased interest in the various medical aspects of athletics by physicians in the United States. The book has been so thoroughly revised that it is virtually new. Many of the excellent line drawings are new, and all of the illustrations are well done. The chapter on physical therapy has been entirely rewritten, and the one on physical fitness has been brought up to date. There is an ample bibliography drawn principally from American and English literature.

The first part is devoted to a discussion of the prevention of athletic injuries. It contains sections on the nature of and determination of physical fitness, including a discussion of the physiochemical changes and one on physical training. In discussing physical fatigue and aids in the prevention of injury, the author points out that the use of oxygen and various stimulants or "pep pills" has never been shown to improve athletic performance, whereas the abuse of these drugs may cause both physical and psychological harm. Part 2 discusses the common types of athletic injuries, and separate chapters are devoted to sprains, strains, contusions, fractures, dislocations, internal injuries, infections, inflammations, lacerations, and abrasions. The author points out that the description of a sprain should include accurate localization of the ligament involved, even though it may be necessary to revise this observation from day to day as treatment progresses. His finding that a sprain of the anterior tibiofibular ligament is the most common ankle sprain is at variance with other reports, but it appears to be based on careful, accurate observation. It is interesting to note that sprain of the tibial collateral ligament of the knee occurs four times as often as the next most common sprain. The discussion of muscle strains is excellent. Part 3 is devoted to the diagnosis and treatment of the more common regional injuries. It concludes with a chapter on physical therapy and reconditioning. The author finds that the bones most commonly broken are those of the fingers and hands, with those of the face a surprising second in incidence, preceding leg, wrist, and foot fractures. The facilities at the Harvard field house, which provide the opportunity to make roentgenograms and set simple fractures under anesthesia, make possible ideal early treatment for these serious athletic injuries.

There is room for some difference of opinion with regard to the value of the hypochlorite foot bath recommended for the prevention of epidermophytosis. The drop in incidence of this infection during the football season, cited by the author, could be due to the effect of physical training and improvement in general hygiene during this period. The use of 10% ammoniated mercury ointment and boric acid salve for the treatment of impetigo is probably outdated. Bursitis is discussed briefly, and no mention is made of x-ray therapy for this condition. Sprain of the sacroiliac joint is a questionable diagnosis when there are so many other possible causes of low back strain. The view that shin splints represent a muscle tear and that they must be treated by rest is at variance with the experience and practice of most runners and track coaches. The conclusions of the Kaplan-Browder study of prize fighters are not quoted fairly. These are only minor faults in an excellent and valuable reference book for any physician treating school, college, or professional athletes.

These book reviews have been prepared by competent authorities but do not represent the opinions of any medical or other organization unless specifically so stated.

Speech Handicapped School Children. By Wendell Johnson, Ph.D., Professor of Speech Pathology and Psychology, University of Iowa, Iowa City, et al. Second edition. Cloth. $4.50. Pp. 575, with 8 illustrations. Harper & Brothers, 49 E. 33rd St., New York 16, 1956.

The book is a comprehensive survey of the speech disorders of children as seen from the standpoint of the educator. It is essentially a textbook for training teachers and speech therapists. The first two chapters present a general orientation and Johnson's point of view. The clinical point of view in education is stressed. The plea here is for increasing recognition in the school of all aspects of the child's development—physical, emotional, and educational—with particular attention to individual differences. Abundant statistical information is given to support the thesis that speech-handicapped children are an important part of the community. Therefore, they are worthy of a concerted effort on the part of the school personnel to correct the deficiency that so seriously interferes with communicative needs of such children. Each of the various types of speech disorders is dealt with in a separate chapter. A chapter contributed by S. F. Brown is devoted to the speech problems encountered in children with cleft palates and cerebral palsy. The aphasias are not considered. The longest chapter, reflecting Johnson's special interest, is devoted to stuttering. A chapter on the speech handicap of children with impaired hearing was contributed by Jacqueline Keaster, an audiologist.

Johnson's point of view toward children with speech disorders seems to be a useful one for teachers, and, as might be expected, the other contributors generally reflect the same point of view. Johnson is devoted to his subject and succeeds rather well in communicating his enthusiasm. In the chapter on stuttering, he dwells at length on the emotional aspects of stuttering, defines the disorder as a "type of anxiety-tension," and states that stuttering is an anticipatory apprehensive, hypertonic avoidance reaction. This point of view is probably useful for the educator, but, since the book does not include any analysis of therapeutic results, the reader is left with many unanswered questions. Johnson protests too much against the inclusion of stuttering in the category of neurotic symptoms. He devotes many pages to trying to protect his stutterers from the neurotic label. In this discussion he is not too successful and only manages to get involved in semantic arguments. This need not detract from the value of his contribution to education. Certainly it would be unfair to evaluate the book as a medical or psychiatric textbook, since this it is not and makes no claim to be.

The Labyrinth: Physiology and Functional Tests. By Joseph J. Fischer, M.D., Clinical Professor in Otolaryngology, School of Medicine, Tufts University, Boston. Cloth. $6. Pp. 206, with 30 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; 99 Great Russell St., London, W.C.1, England, 1956.

Knowledge about the labyrinth has increased in the last few decades to a scale unthinkable even a short time ago. From a viewpoint of function, the labyrinth is divided into cochlear and vestibulosemicircular parts and the study of each of these divisions has been developed into an advanced discipline. Although this book is entitled "The Labyrinth," it deals with facts and problems of only a small, nonacoustic part of this organ. Its real objective is to summarize the methods presently available for testing the vestibular apparatus. To help the reader understand the subject, the first chapter is devoted to a brief survey of vestibular physiology. The second chapter is concerned with the common vestibular symptoms and phenomena that are elucidated by the laws and theories of vestibular function. All vestibular reflexes and clinical signs, such as vertigo, nystagmus, and other spontaneous signs, and the induced reactions, such as past pointing, optokinetic reaction, calorization, rotation, and mechanical and galvanic reactions, are discussed and their origin explained. Chapter 3 is devoted to a presentation of the functional tests. The points, discussed from a physiological viewpoint in the previous chapter, are presented entirely from the

viewpoint of their clinical applications. The various methods of testing the vestibular apparatus are considered under the heading of Induced Reactions. This part of the book is comprehensive and modern in its concepts. The newer developments and modifications in the caloric and rotatory stimulation are presented and briefly explained. The techniques of performing these tests are given, and the evaluation of the findings is discussed. The reader can readily familiarize himself with the newest testing methods, for example, directional preponderance, culmination test, and cupulometry. Each section contains adequate references. At the end of the book is a survey evaluating the abnormal results of various test performances, and a differentiation is made between peripheral and central vestibular lesions. Vestibular testing and labyrinthine evaluation have never enjoyed their deserved popularity within the field of otolaryngology. This volume can be heartily recommended to physicians, from the first year otolaryngological resident, who should profit greatly from it, to the experienced practitioner.

Essential Urology. By Fletcher H. Colby, M.D., Consultant, Massachusetts General Hospital, Boston. Third edition. Cloth. $8. Pp. 656, with 358 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1956.

The fact that this third edition has been published within six years of the first attests to the author's ability to provide a text that keeps abreast of current diagnostic and therapeutic methods in urology. The book is divided into three parts. Part 1 deals with the embryology, anatomy, and physiology of the genitourinary organs; part 2 with examination of the urologic patient; and part 3 with diseases of the genitourinary organs. The first part is concise and factual. The development, adult relationships, and functions of the various organs are correlated so as to give a clear and accurate picture of the genitourinary system in health and disease. Drawings and photographs help to illustrate the subject matter. Where applicable, paragraphs called "practical considerations" point out salient facts that are clinically important. Part 2 is brief and touches on significant points in a patient's history and physical examination. Reference is made to a few laboratory tests as well as to cystoscopic and urographic studies. Part 3 constitutes about four-fifths of the volume. Beginning with the kidneys, each organ of the urinary tract is treated individually and consecutively. Each disease is introduced in broad general statements concerning the process. The lesions encountered are then reviewed, including both gross and microscopic features. Characteristic symptoms are considered and followed by the diagnostic methods that apply. Finally, treatment is reviewed and the prognosis outlined. In general, the subject matter is clearly and concisely presented in a readable fashion. Illustrative urograms and photographs demonstrating gross and microscopic pathology are used generously. In discussing topics on which multiple opinions or methods of management prevail, the author recognizes these differences and gives his own preferences. This edition should be of value, particularly to the medical student, the graduate student in urology, and the general practitioner. An extensive bibliography of current literature is provided.

New Bases of Electrocardiography. By Demetrio Sodi-Pallares, M.D., Chief of Department of Electrocardiography at National Institute of Cardiology of Mexico, Mexico City, with collaboration of Royall M. Calder, M.D., editor, English translation, Clinical Professor of Medicine, Graduate School, Baylor University, Houston, Texas. Translated from recent revision of third Spanish language edition, copyright by La Prensa médica mexicana, México 7, D.F. Cloth. $18.50. Pp. 727, with 523 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1956.

This English edition of a textbook on electrocardiography that has already had three Spanish editions is most welcome. The book is written primarily for students and incorporates within it the many years of teaching experience that the author has had at the National Institute of Cardiology of Mexico. For instance, one will find in this book the clearest explanation of the electrical position of the heart given anywhere. Although the author follows the lead of his teacher, the late Dr. Frank Wilson, he has also included results of his own research, particularly in reference to the correlation of electrocardiographic, clinical, and pathological data. The first chapters follow the conventional pattern of describing the electrophysiological basis for electrocardiography. Subsequent chapters are more concerned with the direct application of these principles than with the long detailed descriptions of clinical electrocardiography commonly found in most textbooks. Vectorcardiography, the ventricular gradient, and intracavitary potential are discussed thoroughly, each in separate chapters. The mathematics of electrocardiography is elaborated in an appendix. The text is well illustrated with diagrams and electrocardiograms. Although there is an excellent bibliography, a great deal of its effectiveness is lost because there is no correlation with the text. This book is recommended to the students and physicians who wish to learn the basic concepts of electrocardiography. No clearer presentation of these is available. It is also an excellent reference book for the cardiologist who from time to time needs a little refreshing in his field.

The Initial Management of Thoracic and Thoraco-Abdominal Trauma. By Lawrence M. Shefts, M.D., Thoracic Surgery Consultant to Brooke Army Hospital, Fort Sam Houston, Texas. Publication number 265, American Lecture Series, monograph in Bannerstone Division of American Lectures in Surgery. Edited by Michael E. DeBakey, M.D., Professor of Surgery and Chairman of Department of Surgery, Baylor University College of Medicine, Houston, Texas, and R. Glen Spurling, M.D., Clinical Professor of Surgery, University of Louisville, Louisville, Ky. Thoracic Surgery Division, editor: Brian B. Blades, M.D., Professor of Surgery, George Washington University, Washington, D. C. Cloth. $6.50. Pp. 121, with 18 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

The background of this monograph is the experiences of the author during World War II. The author discusses resuscitation, thoracic wounds, thoracoabdominal wounds, wounds of the thoracic wall, and closed thoracic and thoracoabdominal trauma and includes illustrative cases. Resuscitation of the patient is foremost in the author's planned program of treatment. The pathogenesis, physiology, and pathological findings are emphasized. The author warns against panicky decisions and against stampedes to the operating room. As surgeons gained experience in the battle zone, fewer thoracotomies were performed. Technical considerations were intentionally omitted from the book. Preference was given to discussing the indications for, and the timing of, surgical operations. The illustrations and line drawings are well placed, graphic and clear and carry easily understood legends. The bibliography is up-to-date and authoritative. The illustrative cases are unusually illuminating; they represent each type of injury discussed in the monograph. With the increases in automotive travel and in the power and speed of vehicles, the number of severe injuries is increasing. This timely monograph is recommended for all physicians, particularly those who serve in the emergency rooms of hospitals.

Principles and Methods of Sterilization. By John J. Perkins, M.S., Director of Research, American Sterilizer Company, Erie, Pa. Cloth. $8. Pp. 340, with 174 illustrations. Charles C Thomas, Publisher, 301-327 East Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 24-25 Broad St., Oxford, England; Ryerson Press, 299 Queen St., W., Toronto 2B, Canada, 1956.

This volume was written to help persons who are responsible for sterilization in hospitals, but it could serve as a general guide for sterilization techniques. It integrates basic principles with practical methods for sterilization of materials. The principles and methods discussed, however, will also be of interest to physicians and surgeons, clinical instructors, pathologists, bacteriologists, and laboratory technicians. The first chapters contain a brief historical introduction and much of the basic material on sterilization and on the equipment used. Subsequent chapters deal with the practical aspects of sterilizing dressings, dry goods, rubber goods, surgical instruments, syringes, and needles. Various methods of disinfection and sterilization and their limitations are discussed, including the use of steam, dry heat, boiling water, chemicals, and gases. In other chapters are discussions on control techniques, central supply departments for hospitals, and preparation of parenteral solutions and infant formulas. References are included at the end of each chapter, and the book also contains a general subject index. The volume should be a valuable addition to the library of any person responsible for sterilization.

QUERIES AND MINOR NOTES

ATHEROSCLEROSIS

To the Editor:—*Please discuss the relative values of products containing choline, methionine, inositol, and Cytellin in the treatment of atherosclerosis and arteriosclerosis. What clinical proof is there showing the value of treating hypercholesteremia for preventing atherosclerosis and arteriosclerosis?*

Harry G. Kurz, M.D., La Habra, Calif.

Answer.—Choline, methionine, and inositol added to a normal, adequate diet are without effect on hypercholesteremia both experimentally in animals and clinically. They are equally ineffective in preventing cholesterol-induced atherosclerosis in animals. The sitosterols, like Cytellin, if given in large doses are capable of reducing cholesterol-induced hypercholesteremia and atherogenesis. Clinically they are useful in decreasing hypercholesteremia and in slightly depressing normal cholesterol levels. The effect, however, is not uniform in all patients so treated, some reacting more favorably than others. Generally, the higher the cholesterol level, the more pronounced the effect. At the present time there is no direct clinical proof that depressing hypercholesteremia helps to prevent the development of atherosclerosis. The justification for the use of these agents lies in the well-documented fact that diseases accompanied by hypercholesteremic states have a significantly higher incidence of atherosclerosis, particularly of the coronary vessels, than diseases accompanied by normocholesteremic states. Also, patients with coronary artery diseases, as a group, have elevated serum lipid levels. It is theoretically sound (and experimentally proved) to implicate the serum lipids in atherogenesis and therefore to try to reduce abnormally high serum lipid levels by dietary or pharmacological means in the hope of retarding the vascular process.

ULCER PILLS

To the Editor:—*Please give information on Exul, which is used to heal ulcers.*

M.D., Illinois.

Answer.—Exul is labeled to be a mixture of nupra (nonhormonic, nonsteriadic extract of cattle organs—liver, brains, adrenals, etc.), 2 gm.; dehydrated milk and cream, 15 gm.; choline hydrochloride, 30 mg.; ascorbic acid, 5 mg.; niacinamide, 1.2 mg.; thiamine hydrochloride, 0.6 mg.; vitamin B_{12}, 0.0009 mg.; and ferrous gluconate, 0.009 gm., with flavor of cocoa, milk solids, and sucrose added.

RICKETS WITH SO-CALLED ADEQUATE DIET

To the Editor:—*Is it possible to develop rickets despite prenatal calcium supplements, large amounts of milk throughout the first two years, and adequate doses of vitamin supplements in infancy? Is there any way, at this time, of definitely proving by x-ray or other means the presence or absence of rickets now or then?*

M.D., New York.

Answer.—It should be emphasized that rickets has now become a rare disease in the United States. During the early part of the century, most cases of marked knock knees were thought to be due to rickets. Now the burden of proof would be on anyone ascribing knock knees and other bone deformities to rickets. In any case the diagnosis of rickets should never be made on the basis of bone deformities alone. Genu valgum may be the result of numerous causative agents, and in most instances hereditary factors are responsible. Mild knock knee is commonly seen in young children and is considered physiological. Marked genu valgum may occur in patients with eccentro-osteochondrodysplasia (Morquio's disease), lipochondrodystrophy (Hurler's syndrome), or various forms of rickets; after poliomyelitis; or as a result of trauma to the lateral femoral epiphysis or the proximal tibial epiphysis. Thus accurate differential diagnostic studies must be carried out. To answer the first question specifically: a normal infant would never develop rickets on adequate prenatal and postnatal diets. There are, however, some forms of rickets that develop in spite of so-called adequate diets. These are vitamin D–resistant rickets (Albright), osteodystrophy (renal rickets), the Fanconi syndrome, celiac rickets, and cystinosis. All these conditions are usually associated with dwarfism and present other signs and blood disturbances that make their diagnosis possible.

In answer to the second question, the presence of rickets if still active could be definitely proved by the laboratory findings of low serum phosphorus level, normal or low serum calcium levels, and increased alkaline phosphatase. The x-ray manifestations at the wrist and knee would be very typical, with cupping, fraying, and flaring seen at the ends of the bone. Recently healed rickets would show the new deposits of calcium at the end of the bones, but the blood findings would be normal.

DIABETIC RETINOPATHY

To the Editor:—*Please discuss the relation of high-animal-protein diet, Propadrine, and vitamin B_{12} in diabetic retinopathy.*

Frederick E. Mott, M.D., New Haven, Conn.

Answer.—It is well known that the serum albumin level tends to be low and the beta globulin fraction frequently high in diabetes, particularly in patients whose glycosuria is poorly controlled and in those suffering from retinopathy and nephritis. It has been reported that, among a group of adequately treated diabetic patients with abnormally low levels of serum albumin, several exhibited an increase in these levels some weeks or months after the ingestion of a diet containing 120 to 140 gm. of protein daily. All of these are said to have experienced remission of retinopathy as judged by improvement in visual fields and visual acuity and cessation of hemorrhages. The implication that the return of serum albumin toward normal levels, occasioned by the high-protein diet, was responsible for the retinal improvement may be justified, and certainly the administration of such a diet, in the absence of renal failure, would be harmless. On the other hand, it must be recognized that the etiology of diabetic retinopathy is still unknown, and it has not been proved to be caused by low concentrations of serum proteins. Furthermore, because of the frequency of spontaneous remissions in the retinal lesions, it is very difficult to be certain whether improved visual acuity and cessation of hemorrhages are in fact attributable to the treatment employed. Perhaps the high-protein diet should be regarded as a means of attempting to correct low levels of serum albumin rather than as a treatment for retinopathy itself. Propadrine is a vasoconstrictor and bronchial dilator and would not be expected to be beneficial in diabetic retinopathy. Becker and co-workers have found that, after receiving a test dose of vitamin B_{12}, diabetics with retinopathy excrete nearly five times as much of the vitamin as do diabetics without retinopathy and approximately twice as much as nondiabetics. These observations should be regarded for the present as uncovering an interesting and possibly significant anomaly of vitamin B_{12} metabolism in such patients, but they do not demonstrate that treatment with vitamin B_{12} is beneficial. This has not been convincingly shown by any investigations to date. The medical management of this condition continues to be most unsatisfactory, except for measures aimed at the strict control of hyperglycemia and glycosuria, and even these are frequently unsuccessful.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

SEDATIVE ACTION OF ALCOHOLIC BEVERAGES

To the Editor:—*Could you give information on the sedative action of liquors (i. e., whisky, rum, vodka)? For example, would it be correct to say that a jigger of whisky might have the same effect as ½ grain (30 mg.) of any of the barbiturates?*

Royal A. Meyers, M.D., Watertown, Conn.

Answer.—The sedative action of an alcoholic beverage does not depend on the flavor of the drink but on the amount of alcohol consumed. Although the sedative effect of alcohol somewhat resembles the action of barbiturates and when both are consumed a definite synergistic effect occurs, it would be a mistake to consider their effects to be identical. Measurable effects of alcohol occur when the alcohol in two ordinary drinks (about 30 gm. of absolute alcohol) has accumulated in the body of an average-sized (150 lb. [68 kg.]) individual. The chief objective symptoms would then be measurable loss of judgment and deterioration of vision. Barbiturates produce their threshold effects of moderate narcosis with about 30 mg. (½ grain). The ratio of the weight of alcohol to the weight of barbiturates for threshold effects would then be about 1,000 to 1. When fatal dosages of alcohol and barbiturates are compared, this ratio is about 100 to 1. This approximation is arrived at by comparing a fatal dose of accumulated alcohol of about 320 gm. (400 cc., or the alcohol in 26 ordinary drinks) to the fatal dose of barbiturates—about 3.3 gm., or 50 grains.

OSTEOMYELITIS

To the Editor:—*A patient has had osteomyelitis of the right femur since he was 7 years old and he is now 46 years old. He has been operated on seven or eight times, the last operation having been performed on May 9, 1956. The infection extends into the distal end of the femur, and there is always a small amount of foul-smelling drainage from the wound. Since it is necessary to take medicine for relief of pain in the leg at intervals every day, he is considering amputation. Is there any possibility of bone grafting where approximately three-fourths of the femur would have to be removed? The upper one-fourth of the femur is not involved in the process.*

Howard V. Weems, M.D., Sebring, Fla.

Answer.—In osteomyelitis, resection of the femur and replacement by bone graft is not very satisfactory. Such grafts can be resorted to for filling old osteomyelitis cavities, if the infection can be brought under control. They will prove successful very often, but the success depends on whether there is enough soft tissue to cover the cavity adequately. The difficulties encountered in a case of this sort might be so great that amputation would be indicated, but such decision would depend on many factors, such as the type of organism causing the trouble, whether the organism is responsive to any of the antibiotics, and the amount of soft-tissue scar.

HISTOPLASMIN SKIN TESTS

To the Editor:—*In case of a positive histoplasmin skin test, what is the chance of false-positive reaction (1) in persons with negative skin tests for other fungi (coccioidin or blastomycin) or (2) in persons with positive tests for other fungi? Does the negative serology for histoplasmosis in the presence of a positive histoplasmin skin test and clinical evidence of obscure pulmonary disease of unexplained lymphadenopathy exclude (1) histoplasmin infection or (2) active stage of histoplasmosis? Please discuss the comparative value of the following serologic reactions in the diagnosis of active histoplasmosis: (1) complement fixation, (2) precipitin test, (3) agglutination, and (4) collodion agglutination.*

M.D., Ohio.

This inquiry was referred to two consultants, whose respective replies follow.—Ed.

Answer.—Histoplasma infections may result in skin-test sensitivity to other fungus antigens. Occasionally an individual may react strongly to histoplasmin but to a much lesser degree to blastomycin, usually less than 50% of the histoplasmin reaction, and coccidioidin rarely. A false-positive reaction to histoplasmin does not occur in persons with negative skin tests for other antigens. In persons with positive tests to other fungi as well, sensitivity to the homologous antigen, histoplasmin, is much greater than to the other antigens; therefore, the positive test becomes significant and is not to be considered a false-positive reaction. Thus it is wise to test for comparative purposes all three antigens: histoplasmin, coccidioidin, blastomycin (and also tuberculin, which does not produce cross reactions) at the same time. Negative serology, particularly the complement-fixation test, in the presence of a positive skin test for histoplasmin and clinical evidence of obscure pulmonary disease and unexplained lymphadenopathy could mean (1) that it might have been too early for antibodies to have formed, (2) that dissemination was occurring and antibodies had disappeared, or (3) that the positive skin test and the clinical condition were unrelated, that is, the positive skin test represented a mild or healed primary infection in the presence of some other disease. In the latter case, in all probability active histoplasmosis was not present. It must be remembered that the complement-fixation test is negative in about 10% of patients with active histoplasmosis and that about 8% of normal individuals have antibodies in low dilution. Serial complement-fixation tests should be done, as a change from a negative to a positive would be significant.

The complement-fixation test is the most valuable and practical serologic test for the diagnosis of active histoplasmosis. Serial tests should be made. In active infection, a rise in antibodies occurs with a peak during the second and third week of the disease and a gradual falling off at four to eight months. A low antibody titer early in the course of the disease may signify a poor prognosis (dissemination) and a high titer a self-limited disease with a good prognosis. In mild cases, the rise in titer is transitory, and, in more severe cases, antibodies may persist for a long time. Antibodies are absent or negligible in serums of patients with apparently only cutaneous or mucocutaneous lesions. Cross reactions rarely occur with an antigen of Coccidioides immitis in the complement-fixation test but not uncommonly occur with Blastomyces dermatitidis. However, in the latter, the complement-fixation titer rises with progression and remains elevated throughout the terminal stages; on the other hand, in focal lesions and cutaneous infections, the complement-fixation titers are low or absent. Precipitin and collodion agglutination tests are sometimes positive in milder cases in which complement-fixation antibodies have not developed. Because these tests may become negative in cases of long duration and because they are sometimes positive in early ones, regardless of whether coccidioidin, histoplasmin, or blastomycin is employed, some workers use all three tests in their laboratory in order to get the most information.

Answer.—The skin-test antigens (histoplasmin, blastomycin, coccidioidin, and haplosporangin) manifest varying degrees of cross reaction. Furthermore, the antigens currently in use have not been truly standardized, either against a homologous standard or against comparative standards. Therefore, comparison of test findings from other sources and their interpretation in relation to a given clinical case is not permissible on the basis of present-day information. The answer is "no" to both parts of the second question. Various types of serologic findings have been observed in known cases of histoplasmosis: (1) no detectable antibodies and (2) antibody dynamics with a rise and fall in titer during acute illness and the convalescent period. In some instances, the titer may wane but persist at low levels for years, while in the majority it tends to fall and disappear in about six months or so after the onset of infeotion. Patients with chronic pulmonary cavitary histoplasmosis are more likely to have prolonged persistence of detectable complement-fixing antibodies. On the other hand, tests on serums from some 50% of patients with disseminated histoplasmosis have been consistently negative. It should be apparent, then, that negative results with presently available serologic tests cannot be used to exclude prior or active infection with Histoplasma capsulatum.

There is much disagreement as to the value and accuracy of the serologic reactions in the diagnosis of active histoplasmosis. At present, complement-fixation tests with yeast-phase antigens appear to offer the most consistent results in tests on serums from experimentally infected animals. However, there have been no large-scale comparative studies involving all four types of tests listed. There are serious discrepancies in findings with different forms of antigen, for example, between yeast-phase

and mycelial filtrate (histoplasmin) antigens in complement-fixation tests on the same serums. The picture is further confused by the cross reactions of serums positive for H. capsulatum with other fungus antigens and vice versa. In addition, the lack of standardization and uniformity of techniques among the various workers makes comparison of results relatively meaningless at present. It appears reasonable to conclude, however, that the detection of an antibody response with a "standardized" Histoplasma complement-fixation technique may, at least, permit the clinician to draw the diagnostic inference that the patient has been infected with one of a group of fungi that elaborate a common antigen. It should be emphasized, as indicated above, that failure to detect such an antibody response does not exclude fungal infection. Thus, demonstration of characteristic yeast forms in sections of biopsy material and/or isolation and identification of the organism remain the only certain means of establishing the specific diagnosis of histoplasmosis.

LOSS OF WEIGHT

To the Editor:—*Is there any drug or compound that will cause a loss of excess weight without the need of a strict diet? I am aware of the amphetamine compounds to lessen the appetite, but I would like to know of something else to use for this problem.*

T. J. Bluechel, M.D., Surfside, Calif.

Answer:—No known drug or compound may safely be taken to cause loss of weight. The word safely deserves emphasis, since some drugs such as alphadinitrophenol, which have succeeded in taking off pounds, have had the disadvantage of making some people blind and killing others. Various diets have been suggested for obesity, including one comprised largely of protein, another comprised largely of fat, and one comprised largely of carbohydrate. There is no evidence that any one of these diets, or any other treatment of any kind, avoids the basic laws of energy exchange. In other words, all fat comes from food, and the only way an obese individual can lose weight is by eating less and exercising more. In this answer the more important question is not mentioned: What is it in an individual's life and make-up that gives him the appetite to cause obesity?

ALLERGY ASSOCIATED WITH MENSTRUATION

To the Editor:—*Please give information on the occurrence of allergic phenomena associated with menstruation. A patient aged 33 has urticaria (hives) with menses.*

Robert Z. Collings Jr., M.D., Casa Grande, Ariz.

Answer.—Allergic reactions such as skin diseases, asthma, and hay fever frequently occur in the premenstrual period and are usually associated with symptoms of premenstrual tension. Several theories concern the etiology of this condition. One of them postulates that the symptoms of premenstrual tension are the result of changes in the electrolyte and water balance of various tissues of the body, which are probably the result of cyclic ovarian activity. According to Zondek and Bromberg (*J. Obst. & Gynaec. Brit. Emp.* **54**:1, 1947), allergic hypersensitivity to the steroid hormones or to the products of their metabolism excreted in the urine can be shown in certain pathological conditions generally related to menstruation or to the menopause by means of active cutaneous tests. Steroid hormones (estrogen, estradiol, progesterone, pregnandiol, testosterone, androsterone, and corticosterone), as well as prolan (chorionic gonadotropin) and insulin, were found capable of allergenic activity. The clinical manifestations of endocrine allergy can be the same, although the hormonal allergen may vary in different cases.

The following varied range of clinical manifestations may be due to endocrine allergy, though they need not necessarily be of this origin: (1) in the respiratory tract—asthma and vasomotor rhinitis; (2) in the cutaneous system—angioneurotic edema, chronic urticaria, and acne; (3) in the nervous system—migraine; (4) in the genital system—premenstrual tension and pruritus vulvae; (5) in the digestive system—nausea, vomiting, diarrhea, and epigastric pain during the premenstrual phase; and (6) in the ocular system—chronic recurrent conjunctivitis and certain forms of keratitis. Heckel (*Am. J. Obst. & Gynec.* **66**:1297, 1953) states that the results of pregnanediol therapy tend to support the hypothesis that many disorders related to ovarian function—premenstrual distress, menopausal symptoms, ovarian pain syndrome (congestion-fibrosis syndrome, pelvic hyperemic syndrome), painful breasts and chronic cystic mastitis, some endometriosis and hypogonadism, and headache and dermatoses associated with the menstrual cycle—are caused by endogenous allergy to steroid hormones. Patients with these disorders were found to be sensitive to pregnanediol, a metabolic product of progesterone with no known biological activity. Pregnanediol produced systemic reactions resembling those already experienced, as well as local reactions to large doses.

LENSES FOR PATIENT WITH DEGENERATION OF MACULA LUTEA

To the Editor:—*A 29-year-old white man has complete degeneration of the macula lutea. The peripheral vision in both eyes is normal. Placental implants have been surgically placed in both retinas, with the hope of staying the progression of the degeneration in the macula area to the periphery of the retina. Is there some place in the United States that is able to make glasses for reading for such a patient? Clinical vision is 20/300 bilateral.*

Paul W. Hughes, M.D., Fort Lauderdale, Fla.

Answer.—It is not necessary for your patient to be sent to a special place in the United States for testing to see whether he can be helped. Magnifying lenses and devices offer the only means of making your patient able to read. Such devices and lenses are available to everybody through the American Foundation for the Blind, Inc., 15 W. 16th St., New York 11. They will send you on request their booklet of devices for helping such patients, and you can make the test yourself in your office. However, it is not at all predictable whether a person with 20/300 vision can be helped. These cases are individual, and one must make the tests rather than predict an outcome.

INGROWN TOENAIL

To the Editor:—*A woman is troubled with ingrown toenails on both great toes. Two years ago a surgeon removed the medial half of each nail, but the nails grew back and turned in as much as before, or more. Today she has much tenderness, pain, and discomfort, so that she is unable to walk any distance, nor can she wear heels that throw her weight on the great toe. Kindly advise if any operation has been devised that will give permanent relief for ingrown toenails.*

M. D., New Jersey.

Answer.—To prevent the recurrence of an ingrowing toenail, it is necessary not only to remove a section of the nail but to completely eradicate the nail bed of that section. The technique for this procedure has been described by several authors: "Diseases of the Foot," by Emil D. W. Hauser (Philadelphia, W. B. Saunders Company, 1950); "The Foot and Ankle: Their Injuries, Diseases, Deformities and Disabilities," by Philip Lewin (Philadelphia, Lea & Febiger, 1947); and "Functional Disorders of the Foot: Their Diagnosis and Treatment," by Frank D. Dickson and Rex L. Dively (Philadelphia, J. B. Lippincott Company, 1939).

CESAREAN SECTION IN PATIENT GIVEN PENTOTHAL

To the Editor:—*I would like to add to the answer given to the Query and Minor Note entitled "Cesarean Section in Patient Given Pentothal" in* The Journal, *Oct. 13, 1956, page 698, a reference to the report by Martland and Martland* (Am. J. Surg. **80**:270, *1950). These authors showed that instead of a placental barrier there is a pooling tendency in the fetus for most of the sedatives given the mother by the oral, rectal, parenteral, or inhalation route. By actual analysis the barbiturates, for example, were found to accumulate in the fetus to a level almost twice that present in the mother, because of the slower and less efficient detoxification and excretory mechanisms of the fetus.*

G. L. Moench, M.D.
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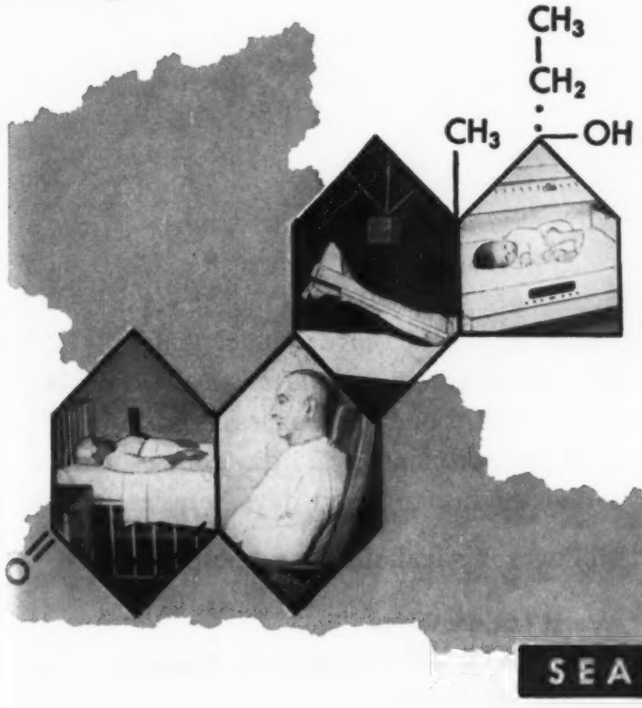

OBJECTIVE AND SUBJECTIVE RESPONSE—Orally effective, Nilevar therapy is characterized by retention of nitrogen, potassium, phosphorus and other electrolytes in ratios indicative of protein anabolism. Moreover, subjectively the patient observes an increase in appetite and sense of well-being.

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There is a growing realization that the function of the ovary is not concerned only with the sexual and reproductive life of the individual but also with metabolic regulation.[1] The influence of estrogen upon carbohydrate metabolism,[2,3] its marked effect on the concentration and distribution of serum lipids,[4-6] and its osteoblastic stimulating properties in bone formation[7] are well documented in the literature. Clinical statistics show that coronary atherosclerosis is 10 to 40 times higher in men under 40 than in women of the same age; that, furthermore, the degree of arteriosclerosis is much greater in women who have undergone bilateral oophorectomy than in control women.[1] Additional evidence of metabolic changes due to estrogen deprivation is the high incidence of osteoporosis in women past the menopause.[8]

Because of the vast metabolic influence normally exerted by estrogen during the reproductive years, declining ovarian function often provokes a variety of symptoms which are not as easily recognized as the "hot flushes" but which, nonetheless, are manifestations of estrogen deficiency. Tachycardia, dyspnea and palpitations have been observed in nearly 70 per cent of cases, and a symptomatic triad of cold extremities, numbness, and tingling in over 48 per cent.[9] Symptoms involving the musculoskeletal system simulating arthritic conditions are not infrequent[9-12] and manifestations of nervous or emotional character are present in the majority of patients.[9]

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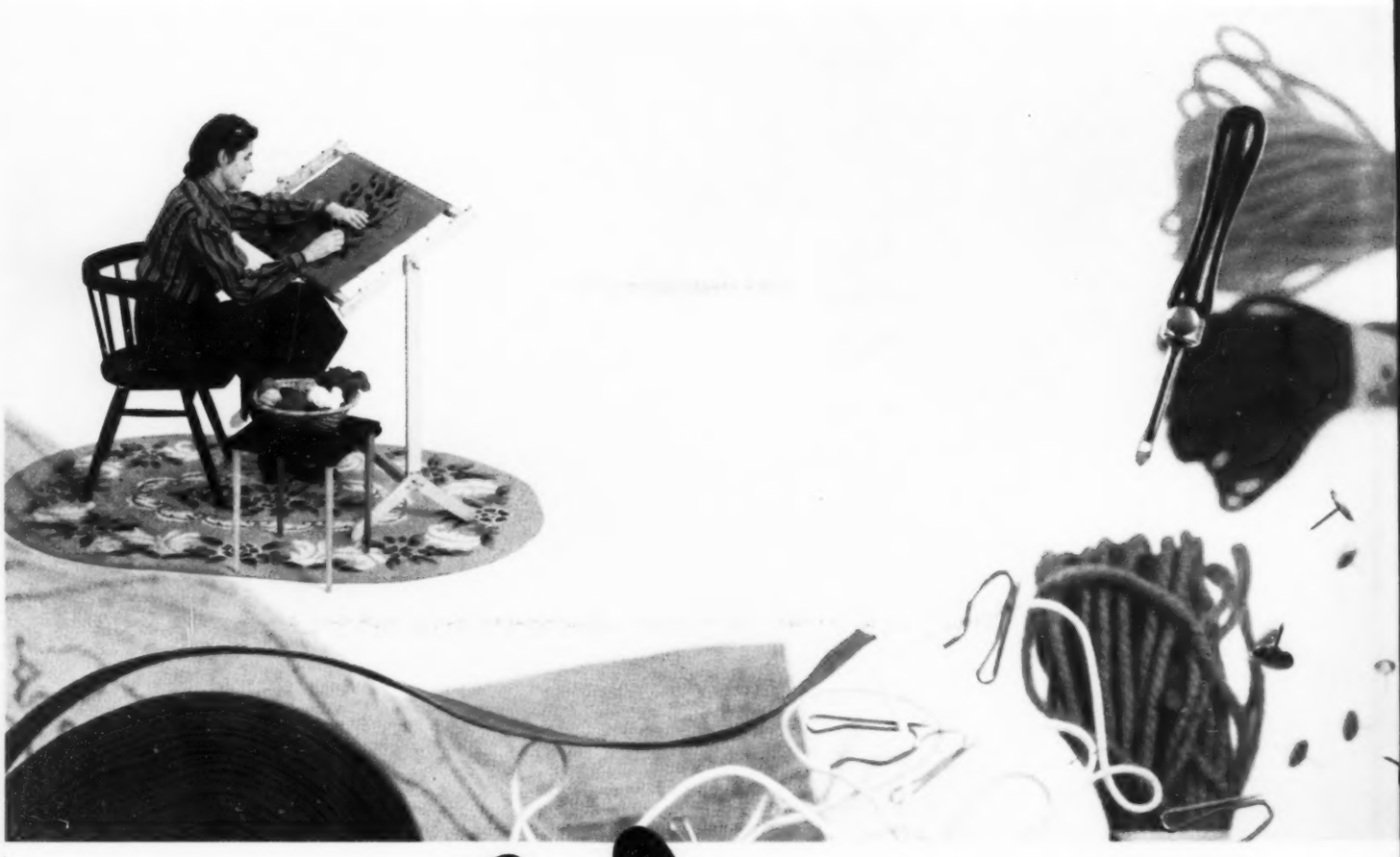

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Journal A.M.A., 535 N. Dearborn St., Chicago 10

NOTICE

GERMAN CAMERAS—BUY ROLLEIFLEX, EXAKTA, many famous makes, binoculars, all accessories through our famous "Import your own" system; you can save from 35% to 50% even after paying U. S. duties; all products are genuine, latest factory production, brand new, guaranteed; pricelists by return mail; specify interests and requirements; Act now. Noel R. Nelson & Company, 7810A Greenwood Avenue, Washington 12, D. C.

PHYSICIANS WANTED

PSYCHIATRY — OPENING FOR STAFF PSYCHIATRIST at Veterans Administration Hospital, Hines, Illinois; 110 bed psychiatric unit in large general hospital; staff psychiatrist has extensive opportunities for teaching, supervision of residents, performing therapy, and research; personal analysis available in adjacent Chicago; our highly active and diversified in-patient program includes psychotherapy (individual and group), somatic therapies and therapeutic activities program (occupational, educational, corrective and manual arts therapies); salary range $8990 to $12,000 (plus 25% for certification); 30 days vacation yearly; 15 days sick leave yearly; U. S. citizenship required. Write: Louis Jensen, MD, Chief, Psychiatry Service, Veterans Administration Hospital, Hines, Illinois. C

STAFF PHYSICIAN—NEEDED TO PRACTICE PSYchiatry in a 37 bed church owned and operated psychiatric hospital, rurally located; devoted entirely to active treatment of acute cases, utilizing electro-shock therapy, insulin, occupational therapy, and psychotherapy; personal habits and philosophy must be compatible with conservative standards of the hospital. Apply: Administrator, Philhaven Hospital, R.D. No. 15, Lebanon, Pennsylvania. C

WANTED—ALLERGIST; CERTIFIED IN INTERNAL medicine or pediatrics; as associate medical director, leading to medical directorship, for Jewish National Home for Asthmatic Children at Denver; non-sectarian, philanthropic institution for rehabilitation if intractable asthmatic children. Inquiries and applications to: Dr. M. Murray Peshkin, Chief National Medical Consultant, JNHAC, 450 West End Ave., New York 24, New York. C

WOMAN GENERAL PRACTITIONER—FOR PARTNERship in excellently equipped new clinic with 33 year old single woman practitioner in town of 10,000; 50 miles north of New Orleans; rapidly growing practice, chiefly women and children; have R.N., practical nurse assistant, and secretary-receptionist; Baylor 1952; give all details in 1st letter; prefer single woman with some capital but not mandatory. Box 2433 C, % AMA.

DIRECTOR OF HEALTH—HEADS CITY OF SAGINAW, Michigan Health Department; 100,000 population; Council-Manager city; progressive jurisdiction; present salary range $11,040-$12,000; entrance rates depend upon qualifications; MD with MPH degree and some public health experience desirable. Please apply. Room 201, City Hall, Saginaw, Michigan. C

WANTED — YOUNG GENERAL PRACTITIONER; TO associate with 2 physicians partnership; well-established clinic; county seat growing city southern West Virginia; open staff hospital in same city; time off for recreation; 1 month vacation and study period; starting salary $10,000; partnership or percentage later if mutually satisfactory. Box 2452 C, % AMA.

WANTED—DERMATOLOGIST, UROLOGIST, PATHOLogist and ophthalmologist; to join 16 man group located in northern Iowa city of 35,000; clinic owns 56 bed hospital in addition; clinic well-established 35 years; new clinic building to be completed July 1957; salary 1st year, leading to partnership. Write full details 1st letter to: Park Hospital Clinic, Mason City, Iowa. C

ASSISTANT WANTED—IMMEDIATELY; MUST HAVE Minnesota license; must be under age 38 preferably married; net salary $12,000 annually for 1st year, then partnership; must present references of character and ability. Write or phone: Joseph Bloom, MD, FACS, Silver Bay, Minnesota, Phone: S.B. 6-4461. C

Patricia Edgerly

Patricia Edgerly has been successfully placing physicians and medical personnel in happy situations.

THE NEW YORK MEDICAL EXCHANGE
489 Fifth Avenue (Opposite Public Library)
Specialists in Selection Since 1926

(Continued on page 74)

Treat the INFECTION . . .
Prevent the RECURRENCE
of superficial fungous diseases *especially*
DERMATOMYCOSIS PEDIS
(athlete's foot)

Desenex®
"NIGHT & DAY"

NIGHT
Every night, liberally apply Desenex Ointment Zincundecate to infected and surrounding areas.

DAY
Each morning, freely dust Desenex Powder Zincundecate on feet (rubbing in to insure contact) and in shoes and socks.

Cures the average moderate to severe case in two to three weeks.

Desenex®
OINTMENT and POWDER
ZINCUNDECATE
and SOLUTION
UNDECYLENIC ACID

- *Potent antimycotic action*
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When

Temptation

fills her

stocking...

prescribe...

DESOXYN®

HYDROCHLORIDE

(Methamphetamine Hydrochloride, Abbott)

THE SYMPATHOMIMETIC AMINES HAVE BEEN found of value, when administered under the supervision of a physician, as an adjunct to the dietary management of obesity. The chief action of these drugs in this condition is the production of anorexia, which is felt to be due to the effect of the drug on the central nervous system, probably on the anterior lobes of the cerebrum. In addition to curbing the appetite, Desoxyn imparts a feeling of well-being and increases mental and physical activity in such a way as to relieve the feeling of frustration and boredom which is often the underlying factor in overeating.

SMALLER DOSAGE, LONGER EFFECT—IT IS GENerally agreed that *d*-desoxyephedrine, milligram for milligram, is somewhat more potent than amphetamine, so the stimulation desired is achieved with a smaller dose, the onset of effect is more rapid, and the duration longer. Doses exceeding those recommended may produce side effects that counteract the benefits of stimulation. With ordinary doses, little or no significant pressor effect has been observed.

Desoxyn alone should not be relied upon to induce weight reduction but should be used only under the direction of a physician in conjunction with the prescription of a general hygienic regime and a special diet.

DOSAGE, SIDE EFFECTS—THE DOSE OF DESOXYN must be adjusted in accordance with the requirements and response of the individual patient. When the anoretic effect of the drug is desired, as adjunctive therapy in an obesity program, Desoxyn should be administered one-half to one hour before meals. In other instances the anoretic effect of the drug might not be desired; in these cases, Desoxyn should be administered with meals or immediately after meals.

Orally, the initial dose should be 2.5 to 5 mg., two to three times daily. Larger doses may be required in some cases, and should be arrived at cautiously. They may be continued as long as the desired beneficial results accrue and there are no untoward effects. Individual oral doses in excess of 10 mg. are likely to produce undesired cerebral stimulation. Medication is not recommended after 4 p.m. or at night, because of the possibility that the drug may interfere with sleep. If the patient is unable to sleep at night, the afternoon dose may be omitted or the excessive stimulation counteracted by the use of effective sedatives such as Nembutal.®

OTHER INDICATIONS: DEPRESSIVE STATES—Desoxyn Hydrochloride is indicated for oral administration in the treatment of narcolepsy and in cases of mild depression accompanying or aggravating prolonged illness, convalescence, old age, or the menopause. A feeling of well-being and increased energy will generally be produced in the patient. This lessens nervous tension and may aid in securing cooperation for more specific therapy.

Favorable results have also been reported following the use of *d*-desoxyephedrine hydrochloride as an adjunct to the treatment of postencephalitic Parkinson's syndrome, chronic alcoholism and generally in conditions for which amphetamine sulfate has been of benefit.

In psychopathic depressions, as well as in mild depressive states, *d*-desoxyephedrine hydrochloride may facilitate management of the patient but will not affect the underlying psychosis. The drug has not been of benefit in the treatment of myasthenia gravis.

CONTRAINDICATIONS—DESOXYN HYDROCHLORIDE and Elixir should be used with caution in the presence of cardiovascular disease, thyroid disturbance, moderate hypertension, or in persons of advanced age. The drug is contraindicated also in neurotic or hyperexcitable individuals and in those who have shown sensitivity to ephedrine or amphetamine-like substances.

ACTION—DESOXYN PRODUCES EFFECTS SIMILAR to those produced by racemic amphetamine. Like the latter, it elevates the mood, increases the urge to work, imparts a sense of increased efficiency and counteracts sleepiness and the feeling of fatigue in most persons. It does not produce the rather marked peripheral pressor effects of ephedrine, except in large doses.

ONSET SWIFT—ONSET OF EFFECT WITH DESOXYN occurs in from 20 minutes to one hour. The duration of action of a single dose of 10 mg. orally varies from six to 12 hours, though in exceptional cases effects may be noted for as long as 36 hours. Sleep is disturbed the night following a dose of 10 to 15 mg. at breakfast in some subjects. By adjusting the dosage, insomnia may usually be avoided. The drinking of coffee increases the effect of the drug. Intensity of the cathartic effect is somewhat greater in normal than in chronic alcoholic persons.

BLOOD PRESSURE, PULSE RATE AND RESPIRATORY rate usually are only slightly or temporarily affected, unless oral doses exceeding 10 to 15 mg. daily are taken.

THE PARENTERAL ADMINISTRATION OF DESOXYN Hydrochloride is suggested for restoring and maintaining blood pressure during operative procedures, particularly during spinal or regional block anesthesia. Its use is suggested to combat acute hypotension during surgical operations and for preoperative administration, particularly before spinal anesthesia, to patients who manifest hypotension or who are considered poor surgical risks.

TOLERANCE NOT DEVELOPED. WHILE THE DRUG is not habit forming in the true sense of the word, some depressed persons may come to rely on it for stimulation, or normal subjects may be induced to use it in excess for relief of fatigue. Tolerance to the drug is not developed. The euphoric and waking effects decrease with protracted use of the drug on account of the accumulated need for sleep and rest. As a result, a larger dose is required to combat the increased need for sleep, and it is the larger dose that produces the undesirable circulatory and metabolic effects. Withdrawal of the drug may thus be rendered imperative. Administration of Desoxyn should be under the constant supervision of a physician.

612262

TONICS AND SEDATIVES

my favorite story

In this space will be published anecdotes submitted by physicians concerning their practice or people in general. Contributions for "My Favorite Story" are welcome.

Inviting an old friend to his weddi anniversary, a gentleman explained how find him in the apartment house where lived.

"Come to the seventh floor," he sa "and where you see the little D on the do push the button with your elbow. Wh the door opens, put your foot against it."

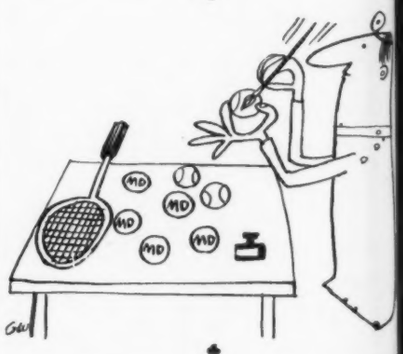
"Why do I have to use my elbow and foot?" asked the friend.

"Well, for heaven's sake," was t answer, "you're not coming empty-hande are you?"

A well-known Chicago club woman call on her lawyer one day concerning som legal papers. During the course of the co versation she remarked that she had di covered that her husband was leading double life.

The lawyer asked, "What are you goi to do about it?"

"Oh," she said with a careless laug "I've redoubled."



Emerging from the theater one nig when New York City was bathed in rai a prominent actress hailed taxis in vain. A last an ancient cab came into view. As sh hailed it, the driver first glared at her, th laughed, and didn't stop.

However, at the corner he was halted b a traffic light, and she climbed into th cab, threatening to report him for his be havior.

"Well," he confessed, "I'll tell you—it like this. When the weather's nice, all yo people turn up your noses at this old ca for shiny new ones. So when a rainy nig comes along, I ride around and laugh m head off at you. It costs ten bucks, but it worth it."

the poetry corner

They have such refined and delicate palates
That they can discover no one worthy o their ballots,
And then when someone terrible gets elected
They say, There, that's just what I expected!

(Continued on page 6

Old and Grumpy

—and somewhat hypertensive, he keeps himself in a fretful, nervous state—hard to get along with.

The gentle "daytime sedation" of Butisol Sodium will help him overcome some of the symptoms that come with aging.

BUTISOL® SODIUM

BUTABARBITAL SODIUM, McNEIL

McNEIL

LABORATORIES, INC.
PHILADELPHIA 32, PA.

TABLETS 15 mg. (¼ gr.), 30 mg. (½ gr.), 50 mg. (¾ gr.), 100 mg. (1½ gr.), Repeat Action 30 mg. and 60 mg.

ELIXIR, 30 mg. (½ gr.) per 5 cc.

CAPSULES, 100 mg. (1½ gr.)

CLINICAL EVALUATION REPORT

New emergency treatment of shock resulting from burns:

Bicarbonate of Soda and Salt

Recent clinical studies by an international group of medical scientists have shown that a solution of Sodium Bicarbonate and Salt, taken orally as an immediate emergency measure, is as effective as whole blood, plasma, or a plasma extender in emergency treatment of shock resulting from severe burns.*

These studies comprised a carefully controlled, large-scale, long-term clinical evaluation which involved nearly 200 children and adults. All had received severe burns covering 10 to 75 per cent of body area. Use of the alternating case method of patient assignment automatically set up two test groups:

(1) Control group receiving standard shock treatment consisting of the injection of blood, plasma, or plasma extender.

(2) Remainder of patients receiving the saline solution orally—a teaspoonful of Salt and half a teaspoonful of Bicarbonate of Soda in a quart of water.

Treatment of both groups was varied only during the first 48 hours. However, the group receiving the saline solution resisted shock, and death from shock, equally as well as the control group—with no toxic effects from use of the saline solution, even though taken in large doses.

This saline solution can be made with materials available in almost every home. The ease with which it is prepared may be of great aid in saving lives in national emergencies and disasters, and where skilled medical aid is not promptly available.

*See Journal A.M.A., August 11, 1956, pp. 1465-1473

Church & Dwight Co., Inc.

70 Pine Street, New York 5, N. Y.

Arm & Hammer and Cow Brand Baking Soda are pure Bicarbonate of Soda, meeting all the requirements of the U.S.P. XV. They may be used with complete safety whenever Bicarbonate of Soda is indicated or prescribed.

If you don't feel just right,
If you can't sleep at night,
If you moan and you sigh,
If your throat feels dry,
If you don't care to smoke,
If your food makes you choke,
If your heart doesn't beat,
If you're getting cold feet,
If your head's in a whirl—
Why not marry the girl?

♠

how it started

Here are some more tracings down of the origins of phrases used in everyday speech.

In the Middle Ages, King Charles I of England was so impressed by an attractive platter of beef that he touched it with a sword and dubbed it Sir Loin. This is how the term "sirloin" for a cut of beef originated.

♠

The barber pole began its career in the Middle Ages when the art of surgery and the trade of the barber were combined. Blood letting was then the great cure-all. A vein in the arm was opened, and the patient was given a stick or pole to grasp tightly, thus making the blood flow more freely.

When not in use the pole was hung outside the shop with a white bandage wound around it in a spiral ready for use, indicating that a surgeon was available. But the sight of the gory pole so discouraged the squeamish that in time the barbers displayed a pole painted red and white instead of that actually used in the operation.

♠

♠

Daniel Drew got his start after the War of 1812 driving cattle into New York City. He got a brilliant idea of feeding them loads of salt. They drank their heads off and built up their weight right smartly so that Drew made handsome profits. Hence the term "watered stock."

♠

quotes of the week

"The gods gave man fire, and he invented fire engines. They gave him love, and he invented marriage."

♠

"What doth it profit a man to have the initiative if his wife has the referendum?"

(Continued on page 70)

ELIMINATE pinworms in one week

roundworms in one or two days

The reputation of piperazine, as an efficient anthelmintic for enterobiasis and ascariasis, was built upon results of extensive clinical trials with *'ANTEPAR' Citrate brand Piperazine Citrate.

Write for pads of direction sheets for patients.

SYRUP of 'ANTEPAR' Citrate brand Piperazine Citrate

TABLETS of 'ANTEPAR' Citrate 250 mg. or 500 mg.

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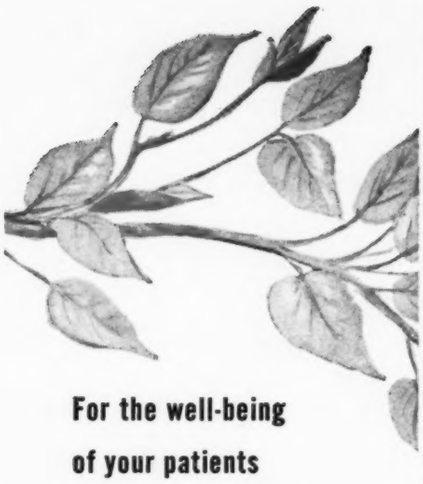

For the well-being

of your patients

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intravaginal protection
during menstruation.
Three absorbencies.

Professional samples on request

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AMA-15-126

TONICS AND SEDATIVES *(Continued)*

"The biggest mystery to a married man is what a bachelor does with his money."

♠

Weaving home after a mellow evening, a noted lawyer met a neighbor woman who upbraided him about his condition.

"If I were your wife," she said angrily, "I would poison you."

With a courtly bow, the gentleman replied, "Madam, if you were my wife, I would gladly take it."

♠

After his wedding, Arthur Kober sent the following wire to the other regulars at the weekly session of the poker club:

"Sorry I can't join you tonight as there is no way of bettering the perfect hand I am now holding."

♠

"How did you succeed in stopping your husband from staying out late?" Mrs. Jones asked.

"It was simple. When he came in too late, I called out 'Is that you, Jack?' "

"How did that stop him?"

"Because his name is Bill."

♠

On a tour an inspector of city high schools came before a class of girls. He wrote on the blackboard LXXX.

Then, peering over his spectacles at a good-looking girl in the first row, he asked, "Young lady, I would like to have you tell me what that means."

The reply was, "Love and Kisses."

♠

A woman stepped off the penny scales and turned to her husband.

He eyed her appraisingly and asked, "Well, what's the verdict—a little overweight?"

"Oh, no," said his wife. "I wouldn't say that. But according to the height table on the scale, I should be about six inches taller."

♠

"Love is like a mushroom. You never know whether it's the real thing until it is too late."

—D. D.

for CONSTIPATED ELDERLY

- Softens stools naturally
- Promotes favorable intestinal flora
- Supplies nutritional barley malt extract for under-par patients

Dose: 2 Tbs. A.M. and P.M.

2 FORMS Liquid and Powder

*Non-diastatic barley malt extract neutralized with potassium carbonate

Send for Samples

Borcherdt's MALT SOUP Extract*

In Canada: CHEMO-DRUG COMPANY LTD., TORONTO

BORCHERDT CO.
217 N. Wolcott Ave., Chicago 12, Ill.

BUY
U. S. SAVINGS
BONDS

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Fine Cosmetics

Quality of Ingredients and Suitability of Selections are two factors underlying the preparation of Cosmetics by Luzier. If you have any cosmetic problems our sales organization will be happy to serve you.

LUZIER'S Inc. • Kansas City, Mo.

"Too bad they don't have a category on gastro-enterology!"

for best results

. . . use The Journal AMA

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THE JOURNAL'S Classified columns are being used regularly and with an outstanding record of proven success! Write for rates on personal and commercial classified ads. For current issue, ad must reach us by Friday Noon, 15 days in advance.

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JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
535 NORTH DEARBORN STREET
CHICAGO 10, ILLINOIS

new triple-action evacuant

softens the stool swells the stool and stimulates peristalsis

unique, new DORBANTYL combines Dioctyl Sodium Sulfosuccinate – the wetting agent that helps form a normal, easily-passed stool,[1,2,3] and

DORBANE – widely prescribed, dependable peristaltic stimulant[4]

unique, new DORBANTYL is both effective and well tolerated–"...a superior evacuant which retains the advantages of both component drugs without the disadvantages of either used alone."[1]

unique, new DORBANTYL is clinically described as a "preparation of choice" in anorectal and colonic surgery, as well as in functional constipation and cathartic habituation.[1]

DORBANTYL*

dosage: Adults, 2 capsules at bedtime; repeat if needed to cause bowel movement. If necessary, dosage may be increased or decreased to meet individual requirements. Children, 3 to 12 years, 1 or 2 capsules taken as above.

supplied: Bottles of 30 capsules and 250 capsules.

references: (1) Marks, M. M.: In press. (2) Antos, R. J.: Southwestern Med. *37*:236, 1956. (3) Wilson, J. L., and Dickinson, D. G.: J.A.M.A. *158*:261 (May 28) 1955. (4) Marks, M. M.: Am. J. Digest. Dis. *20*:240, 1953.

in occasional constipation
or for more rapid response prescribe

DORBANE®

peristaltic stimulant
selective, persuasive, crystalline-pure

DORBANE scored tablets (75 mg.) and
DORBANE orange-flavored suspension (37.5 mg. per 5-cc. tsp.).

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New **distinguished appearance**

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***New*—Solid Mahogany Cabinet**
Rich hand-rubbed finish in choice of Blonde (illustrated) or Natural Mahogany—exclusive with Cardi-all!

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Unbreakable, leak-proof — impervious to extremes of temperature and climate. Exclusive with Cardi-all!

***New*—Paper Compartment Light**
For easier reading while recording . . . also serves as on-off pilot light.

Compare Cardi-all on all these points!

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Completely Portable! Weighs less than other EKG instruments — a vital factor for versatile use in office, hospital, or patient's home.

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630 W. Jackson Blvd.
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55 E. Washington Street
Chicago 2, Illinois
Service of Distinction since 1914

GENERAL PRACTICE: (a) Calif; city of 60,000; assoc. with well-estab. G.P. diversified prac; $12,000. (b) Calif; 8 man grp. near S.F. (c) Fla. well estab. med. grp; excel opp. license req. (d) 6 man grp. near Wash., D. C.; good sal. start; ptnship 1 yr. (e) Assoc; genl. & surg. prac; NW; start; ptnship 1 yr. (f) Assoc; sub. of Chgo. large prac. excel opp. ptnship. (g) MW; well-known grp; own med. bldg. new; $12,000 1st year, $15,000 2nd. then ptnship. (h) MW; assoc. well-estab. prac. in city 90,000. $12,000. (i) S; Asst. large genl. prac. minor surg. no O.B. $12,000. (j) Assoc. MW; some surg. & O.B. City of 200,000. $10,000 min. to start. (k) NW; assoc. large prac. mining town of 6000 in resort area. $12,000 start inc. every 3 mo. ptnship 1 yr. (l) MW. Small grp. Own 35 bed hosp. City 25,000. $12,000. (m) Med. dir. penal inst; minor surg; $14,000 plus priv. prac. town of 30,000.

HOUSE PHYSICIANS: (a) E; 50 bed hosp; $4200 plus 2 bedroom apt. (b) E. 65 bed approved hosp.; $5000 full maint. incl. furnished house.

INSURANCE: (a) Medical consultant on all general health facilities. $10,000 plus. (b) Woman. Supervise active employes health program. $10,000.

INTERNISTS: (a) Chief of Clinical Services with outstanding hosp. grp. $17-$20,000. (b) Well estab. grp. near Chgo. Own aid cond. medical bldg. exc. hosp. facilities. $15,000 1st yr. $18,000 2nd. then ptnshp. (c) MW. 5 man grp. opp. for teaching in med. sch. To $12,000. (d) MW. Small grp. in progressive community. Excel hosp. facilities $12-15,000. (e) NW. Well est. grp. in city 30,000. New clinic bldg. $12,000 minimum. (f) SW. 11 man grp. all board men; some indus. type work.

OB-GYN: (a) MW; well-known grp. city 50,000; $12,000. (b) NW; cert. not nec; well-estab. grp. city 30,000; $12,000. (c) SW. Grp. of 5 spec. will be only one this spec. $15-20,000. (d) SW; 5 man grp. in city of 50,000; busy OB-GYN prac. already set up; $15-20,000.

PATHOLOGY: (a) SW; superv. med. spec. of lab. of old estab. clinic. $15,000 min. (b) NW; assoc. 200 bed hosp; city 75,000; $12,000 min. (c) S; 175 bed hosp; develope dept. Pers. basis; $20,000 guarantee. (d) assoc. Board man; SW; 250 bed hosp; $12,000 first yr. then ptnshp. (e) Calif. 300 bed hosp; $12-20,000.

PEDIATRICS: (a) SW; 10 man grp. growing rapidly; city 65,000; $12,000 start. (b) Calif; assoc. with 4 Board men; large prac; near S. F; $10-$12,000. (c) MW; small grp. in highly populated area; excel. hosp. facilities $12-$15,000. (d) E; assoc. with grp. of 4 internists; near Phila. $12,000. (e) NW; small grp; new clinic bldg. twn. 15,000; drawing area 40,000; $12-$14,000. (f) S. Assoc. Board man. Excel. financial arrangements. Calif. Well estab. med. grp. 12 spec. own med. bldg. $12,000.

PHYSIATRIST: To be Med Dir. Large rehabilitation center, fully approved.

Upon request one of our applications will be mailed to you. Write us today—a post card will do.

ORTHOPEDIC SURGEON—BOARD QUALIFIED; MID-West; part-time in children's hospital, part-time private assistant; opportunity for clinical and experimental research in addition to surgical service. Box 2460 C, % AMA.

WANTED IMMEDIATELY — RESIDENT PHYSICIAN; railroad hospital; Indiana town of 15,000 population; good salary, applicant must be graduate of United States Class A Medical School; must qualify for Indiana license. Box 2258 C, % AMA.

WANTED—AMERICAN BOARD SPECIALISTS; PHYSicians interested in group or private practice, teaching research, public health, or industrial medicine; National and International services. Our 60th Year. Woodward Medical Bureau, 185 N. Wabash Avenue, Chicago. C

GENERAL PRACTICE—YOUNG MAN INTERESTED in excellent opportunity in fast growing suburban community; 30 miles from Chicago; individual practice starting salary $1000 monthly, eventual partnership. Box 2332 C, % AMA.

WANTED—PEDIATRICIAN; TO TAKE OVER PRACtice in rapidly expanding suburban Sacramento, California; excellent opportunity; no financial investment; leaving to assume teaching position. Box 2392 C, % AMA.

INTERNIST AND PSYCHIATRIST WANTED — FOR full time staff in 300 bed general hospital and mental hygiene clinic: service chief's Board certified. Apply: Manager, VA Hospital, Wilmington, Delaware. C

ASSOCIATE PHYSICIAN—APPROVED CHEST DISease hospital+; at least 1 year training in pulmonary diseases; must have, or be able to acquire, California license; salary $9600. Box 2445 C, % AMA.

PHYSICIAN—TO DEVELOP PULMONARY FUNCTION laboratory in chest disease hospital+; salary $12,000; please supply full details of experience and qualifications in original letter. Box 2446 C, % AMA.

WILL ASSIST ENGLISH SPEAKING PHYSICIAN CApable of practice in adjacent small towns and rural community. Contact Physicians Placement Service of Monmouth, Illinois, or Box 2430 C, % AMA.

MEDICAL DIRECTOR—INDUSTRIAL; SET UP NEW medical department; New Jersey; $13,000. New York Medical Exchange, 489 Fifth Avenue, New York City, Patricia Edgerly, Director. C

MEDICAL DIRECTOR — UNDER 40; INSURANCE company, New York City; industrial experience necessary; $12,000-$15,000; New York Medical Exchange, 489 Fifth Avenue, New York City, Patricia Edgerly, Director. C

WANTED—TWO SENIOR PHYSICIANS; ONE MAN, one woman; in State training school for mental deficiency and convulsive disorders; salary range $7320-$10,380, annual increases of $360, consideration given experience in determining starting salary; 3 weeks vacation, 15 days sick time, retirement system, 40 hour, 5 day week; requirements: 1 year internship, plus 3 years residency or practice; citizenship and Connecticut license; housekeeping apartments at nominal charge; 6 physicians, 1 dentist on resident staff; 11 man consultant group; pleasant congenial staff; pediatric or psychiatric training helpful. Write: Mr. Glendon A. Scoboria, Personnel Director, State Office Building, Hartford 15, Connecticut. C

(Continued from page 65)

UROLOGIST — CERTIFIED OR BOARD ELIGIBLE; for chief of active service affiliated with Western Reserve Medical School; opportunity for Medical school appointment. Apply: Director of Professional Services, Crile VA Hospital+, 7300 York Road, Cleveland 30, Ohio. Victory 3-9260, Ext. 218. C

ASSISTANT RADIOLOGIST—400 bed hospital*+ affiliated with medical school and approved for residency training; opening available January 1, 1957; give full particulars concerning training and experience. Reply: Director, Department of Radiology, Mount Sinai Hospital, Chicago 8, Illinois. C

DERMATOLOGIST — TAKE OVER ESTABLISHED practice, beautiful western university city; splendid inducements; medical, social, financial, climate, outdoor living; large growing population, introduction; illness; equipment, X-ray, radium as desired. Box 2434 C, % AMA.

WANTED — DECEMBER 1, 1956; 1 HOUSE PHYSIcian; July 1, 1957 3 house physicians; $600 salary in addition to full maintenance; prerequisite, Pennsylvania license or its equivalent. Apply: Martha C. Marks, Assistant Administrator, Westmoreland Hospital, Greensburg, Pennsylvania. C

WANTED—FULL TIME PHYSICIAN FOR RAILWAY; must be eligible for license in Virginia, West Virginia and Ohio, and under age 55. Box 2298 C, % AMA.

OTOLARYNGOLOGIST — EXCELLENT OPPORTUnity, associate with OLAR group of 4; Board eligible advisable but not necessary; adequate salary 1st year and increase or partnership if mutually satisfied; Texas city of 250,000. Box 2451 C, % AMA.

WANTED—RADIOLOGIST; BOARDS OR ELIGIBLE; closely affiliated with State University of Iowa; teaching and research interest desirable; salary to $13,760; citizenship required. Apply: Manager, Veterans Administration Hospital+, Iowa City, Iowa. C

ASSISTANT MEDICAL DIRECTOR — APPROVED chest disease hospital+ must have, or be able to acquire California license, clinical and research experience in pulmonary diseases desired; administrative background not essential; salary $11,000. Box 2444 C, % AMA.

RADIOLOGIST—PRIVATE PRACTICE PLUS HOSPItal connection, eventual 3 man partnership; salary $15,000-$18,000 1st year; partnership and percentage beginning second year; progressive Michigan Community 200,000 population. Box 2440 C, % AMA.

WANTED—GENERAL PRACTITIONER; TO JOIN TWO man group doing general medicine in new clinical building with all facilities; excellent hospital facilities, northwestern Illinois; salary open depending on qualifications. Box 2439 C, % AMA.

PATHOLOGIST — DIRECTOR OF LABORATORY 170 bed general hospital*+; enlarging to 250 beds; Michigan location. Box 2450 C, % AMA.

(Continued on page 78)

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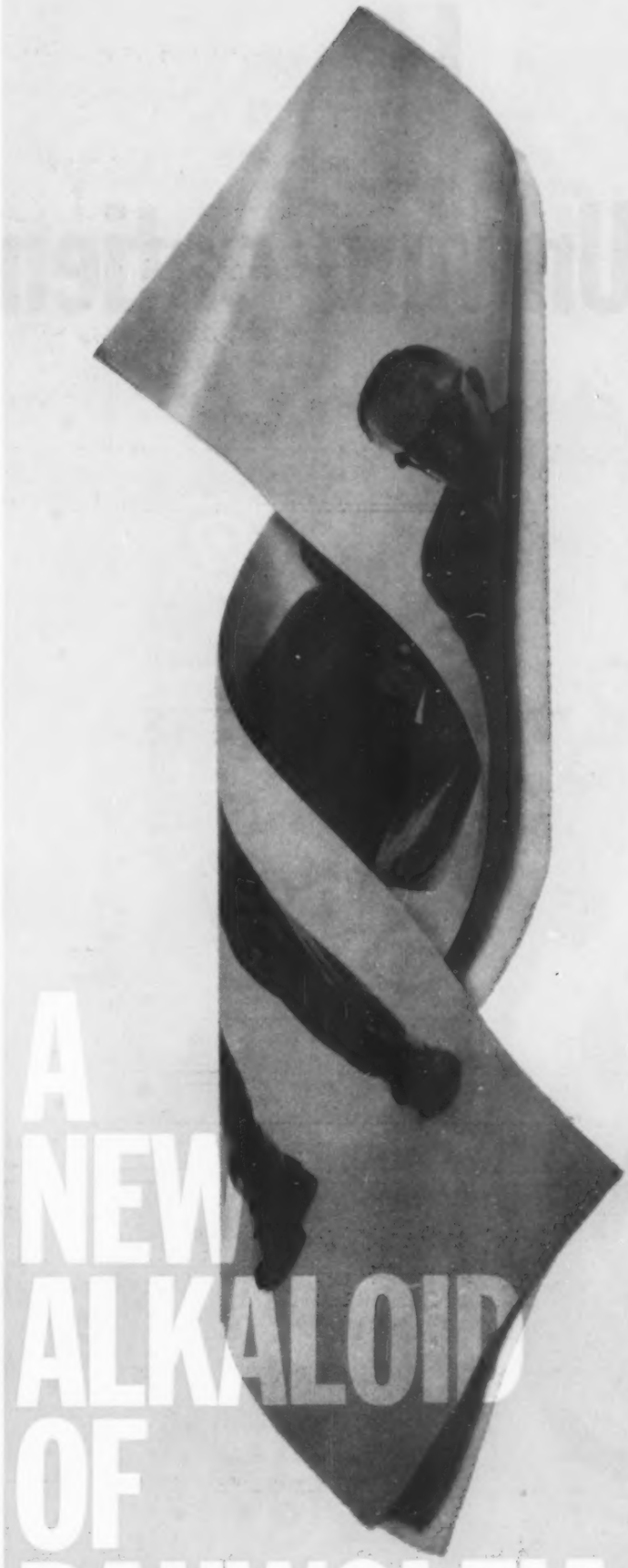

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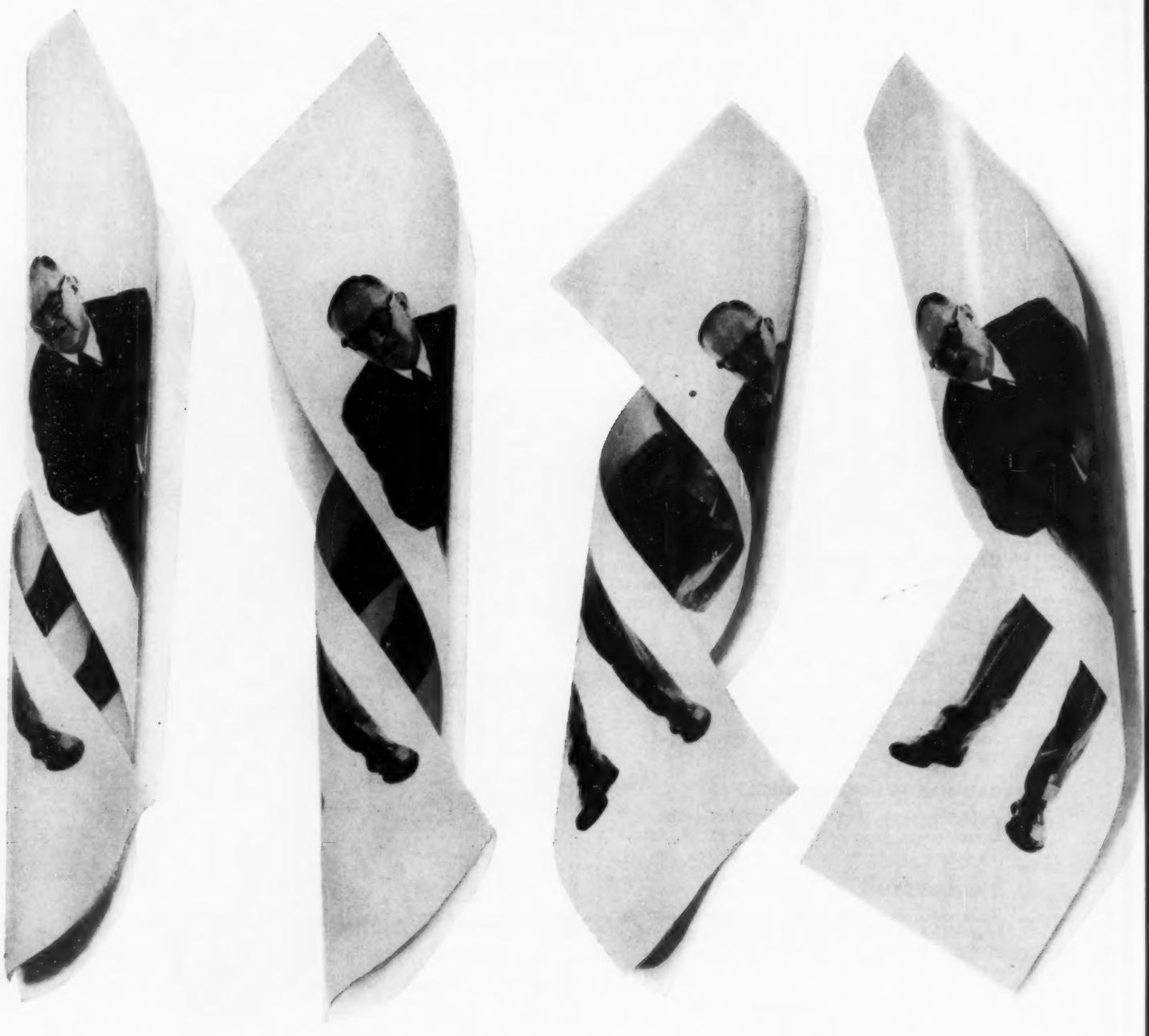

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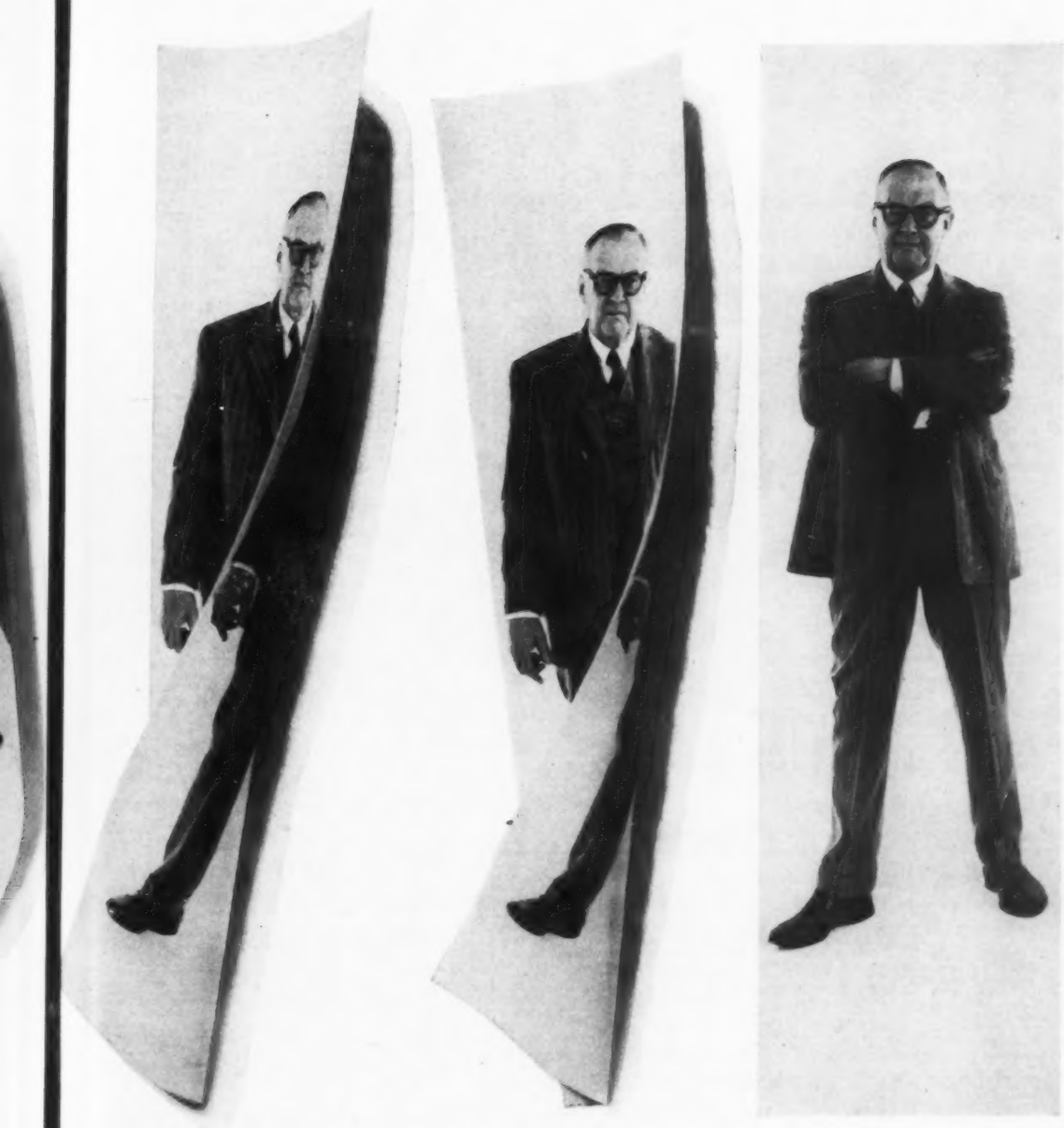

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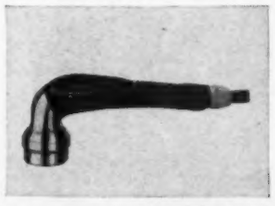

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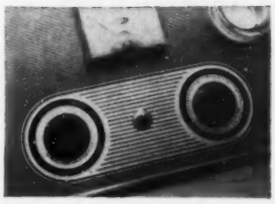

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MEDICAL OFFICER—GLENN DALE HOSPITAL, THE tuberculosis hospital for the District of Columbia; salary $9000 to $10,300 per annum depending on qualifications; sick leave, annual leave and retirement benefits; satisfactory completion of 1 year of approved residency in pulmonary diseases or internal medicine, or comparable experience required; must be eligible for licensure in District of Columbia; outpatient clinic service connected with hospital. Address inquiries to: Medical Director, Glenn Dale Hospital, Glenn Dale, Maryland. C

GENERAL PRACTITIONER—FOR STAFF OF GROUP practice clinic; serving membership of over 20,000, in Washington, D. C.; department heads and many other staff members have American Boards; prefer man with 2 years general internship and graduate of grade A medical school; annual salary open; 1 month vacation; study leave; sick leave; comprehensive retirement plan. Write to: Medical Director, Group Health Assoc., Inc., 1025 Vermont Ave., N.W., Washington 5, D. C. C

PSYCHIATRISTS, PSYCHIATRIC RESIDENTS, AND general physicians—Indiana's Mental Health Program; superintendent: $13,800 plus complete maintenance; assistant superintendents, clinical directors, chiefs of service: $11,700-$14,000; psychiatrists: $9,300-$12,900; psychiatric residents: $4,380-$5,760; general physicians: $6,900-$9,900; U. S. citizenship and Indiana license required. Write: Division of Mental Health, 1315 West 10th Street, Indianapolis 7, Indiana. C

WANTED—PHYSICIAN; PHYSICIAN TO CARE FOR neuropsychiatric patients in 960 bed hospital, under supervision of a certified psychiatrist; opportunities for professional and salary advances; hospital located in home town of University of Alabama, with many cultural advantages; house on station available for nominal rent; salary ranges from $7570 to $10,320 depending upon qualifications. Apply: Manager, Veterans Administration Hospital, Tuscaloosa, Alabama. C

WANTED — ASSISTANT MEDICAL DIRECTOR FOR Mineral Springs Sanatorium, Cannon Falls, Minnesota; 100 bed county tuberculosis hospital with active medical, surgical, out-patient and investigative programs; salary determined by experience; furnished house and utilities supplied; applicant must be male graduate of approved medical school and eligible for Minnesota license. Address: E. V. Bridge, MD, Superintendent. C

OPPORTUNITY FOR MEDICAL DOCTOR—IN NORTHeast Montana; badly needed; progressive wheat, ranching and oil development area; office and housing no problem. Contact: Chamber of Commerce, Poplar, Montana. C

The Medical Bureau

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ACADEMIC: (A29) Faculty members, new med. school; qual. head divisions, particularly in anes., plastic surg., oph., oto., orthopedics.

ANESTHESIOLOGY: (B38) Ass'n, 6 man anes. group; hosp. & priv. prac; lge city, educ. center, E; sal. or fee-for-service.

ASSISTANTS: (C18) By 2 surgeons; considerable CV., pulmonary surg; coll. town, MW. (C19) Small group; duties: gen. practice, ob., surg. assisting; coastal city, Calif.

DERMATOLOGY: (D57) Group estab'd '19; staff of 22; partner oppor; univ. city, SW.

GENERAL PRACTICE: (F1) GP exp. OB-GYN; ass'n, one of oldest & largest GP groups in Calif; salary, 1st yr; % 2nd. (F2) Ass'n 2 GP's; town, 12,000, NJ, near 2 lge cities. (F3) Ass'n, 5 man group; well equipped clinic, own x-ray & lab. facilities; rapidly expanding coll. town, 125,000, Texas; partner after 1st yr. (F4) Ass'n, GP, operating small clinic; complete lab. facilities; town, 20,000 midway between 2 univ. cities; min. $12,000; 2d, $15,000; after 2d, partner; So. (F6) Ass'n, GP with 2 man practice; well staffed offices; excel. connections; coll. town, 50,000, Ill; early partner.

INDUSTRIAL MEDICINE: (G24) Med. dir; new plant; coll. town, near lge city, med. center, So. (G25) Young phy. qual. develop indus. med. & surg. dept, 32 man group estab. '20; Calif. (G26) To join med. staff, highway engineering project, Indo-China; 3-yr contract; $15,000 (Fed tax free).

INTERNAL MEDICINE: (H40) Head dept, 12 man group, estab. '15; coll. town, NW Texas; dry climate; practice from radius 500 miles; $1000 plus % netting $1800 mo. (H41) Ass'n, excel. dept int. med., important indus. co; career post; res. town, E, near several lge cities; 5 day week; $13,500 (H42) Ass'n, 2 Board internists; full partner 2d yr; Oregon. (H43) Ass'n, well estab. young internist, Dipl; coll. town, 45,000, S.E.; partner. (H44) Ass'n Board surg; pref. qual. cardiology or G.I.; So. Calif.

INSURANCE MEDICINE: (X50) Two; ass't med. directors, one for E; other, MW.

NEUROSURGERY: (I26) Int. research as well as clinical neurosurgery, one of country's leading clinics; new 800 bed gen. hosp; tch'g prog.

OALR: (E68) Oph. ass'n, Board oph; coll. town, immediate drawing area, 100,000; Mich; 1st yr, $18,000; 2d, $24,000; partner oppor. (E70) Oph; foreign operations, major indus. co; substantial sal., tax free; 2-yr contract; renewable.

OBSTETRICS-GYNECOLOGY: (J2) Ass'n, well estab. OB-GYN Dipl; town, 40,000 near med. center, NY. (J3) Ass'n, group estab. '28; expansion prog. to 20 men; attrac. city, near San Francisco; sal. basis, 2 yrs; 3d, partner.

ORTHOPEDICS: (K49) Qual. succeed head, dept, 12 man group, retiring after long tenure, one of clinic's founders; town 80,000, SW. (K50) Head dept, new gen'l hosp. serving indus. group; if Board or near cert., $17,000-$20,000; annual increases $1000 for 5 yrs; So.

PATHOLOGY: (L81) Dir. dept, 350 bed gen. hosp; town 100,000, MW; % with min. guarantee; present director, retiring, has been netting $40,000. (L82) Dir. dept, 190 bed gen. hosp; oppor. dir. 2 other hosps making total 390 beds; oppor. priv. pract. or % with guarantee; coll. town, 150,000 So.

PEDIATRICS: (M67) Head dept, new gen'l hosp., serving lge indus. group; if Board, $17,000-$20,000; annual increases $1000 for 5 yrs; So. (M68) Young man int. academic ped., research; up to $14,500 dep. quals; E.

P & N: (P38) Psy. ass'n, Board P&N; lge priv. pract; oppor. tch'g research; min. $16,000; early partner; med. school city, MW. (P39) Neurologist int. practicing pure organic neurology without psy; ass'n, 2 neurosurgeons well estab. med. school city, W.

PUBLIC HEALTH: (Q22) Chief health officer, univ. city, E.; $14,000.

RADIOLOGY: (R68) Dir. dept, 600 bed gen. hosp; % netting $35-$40,000; lge city, MW. (R69) Assoc. rad; 700 bed tch'g hosp; univ. city, SW. (R70) Ass't rad; new 300 bed gen. hosp., foreign operations, leading indus. co; $20,000 (tax free).

SURGERY: (U24) Gen surg, qual. chest, vascular surg; 28 man group; estab. '27; univ. town, MW. (U25) Chief of surg; new gen'l hosp., serving lge indus. group; if Board, $17,000-$20,000; annual increases $1000 for 5 yrs; So.

UROLOGY: (W60) Head dept, 33 man group; drawing area, 200 miles, MW.

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WANTED — HOUSE PHYSICIAN; FOR HOSPITAL*+ with 296 beds and 36 bassinetts; for year beginning July 1, 1957; approved for interns, surgical, and pathology residencies; applicant must be licensed in Pennsylvania, or eligible for Pennsylvania licensing; good salary with complete maintenance; female physician acceptable. Apply to: D. W. Hartman, Administrator, The Williamsport Hospital, Williamsport, Pennsylvania. C

INTERNIST OR GENERAL PRACTITIONER — FOR medical ward service in a 1000 bed general hospital+ with residency program and university affiliation; must be citizen and licensed in any state; salary range from $5915 to $13,760, strictly according to applicant's past experience and educational background; fringe benefits. Apply to: Dr. A. Tomasulo, Director, Professional Services, VA Center, Dayton, Ohio. C

(Continued on page 81)

in over 3000 patients

a most satisfactory drug for the relief of postpartum breast engorgement.[1]

1. Eichner, E.; Goler, G. G.; Sharzer, S., and Horowitz, B.: Obst. & Gynec. 6:511, 1955.

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2. Greenblatt, R. B., and Brown, N. H.: Am. J. Obst. & Gynec. 63:1361, 1952.

"The total absence of recurrent engorgement, the minimal amount of withdrawal bleeding, and the absence of almost all symptoms after the first few days has been noted by all using TACE."[1]

1. Eichner, E.; Goler, G. G.; Sharzer, S., and Horowitz, B.: Obst. & Gynec. 6:511, 1955.

"Recurrence of symptoms and appearance of withdrawal bleeding are virtually eliminated, probably because of the storage of TACE in body fat and its gradual release after cessation of therapy."[3]

3. Nulsen, R. O.; Carmon, W. B., and Hendrick, H. O.: Am. J. Obst. & Gynec. 65:1048, 1953.

Dosage: 4 capsules daily, for seven days. *Also* . . . smooth relief of the menopause with less withdrawal bleeding . . . prolonged estrogenic effect.

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1. Merrill, A.L., and Watt, B.K.: Energy Value of Foods...Basis and Derivation, United States Department of Agriculture, Human Nutrition Research Branch, Agricultural Research Service, Agriculture Handbook No. 74, March 1955, pp. 8, 9, 25, 32-43, 60-87.
2. McCance, R.A., and Glaser, E.M.: The Energy Value of Oatmeal and the Digestibility and Absorption of Its Proteins, Fats and Calcium, Brit. J. Nutrition 2:221 (1948).
3. McLester, J.S., and Darby, W.J.: Nutrition and Diet in Health and Disease, ed. 6, Philadelphia, W.B. Saunders Company, 1952, pp. 189-190.

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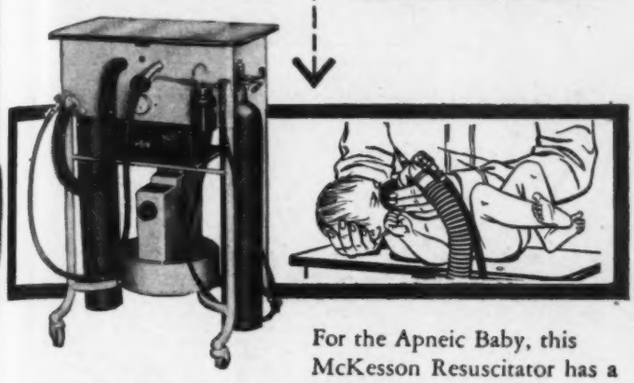

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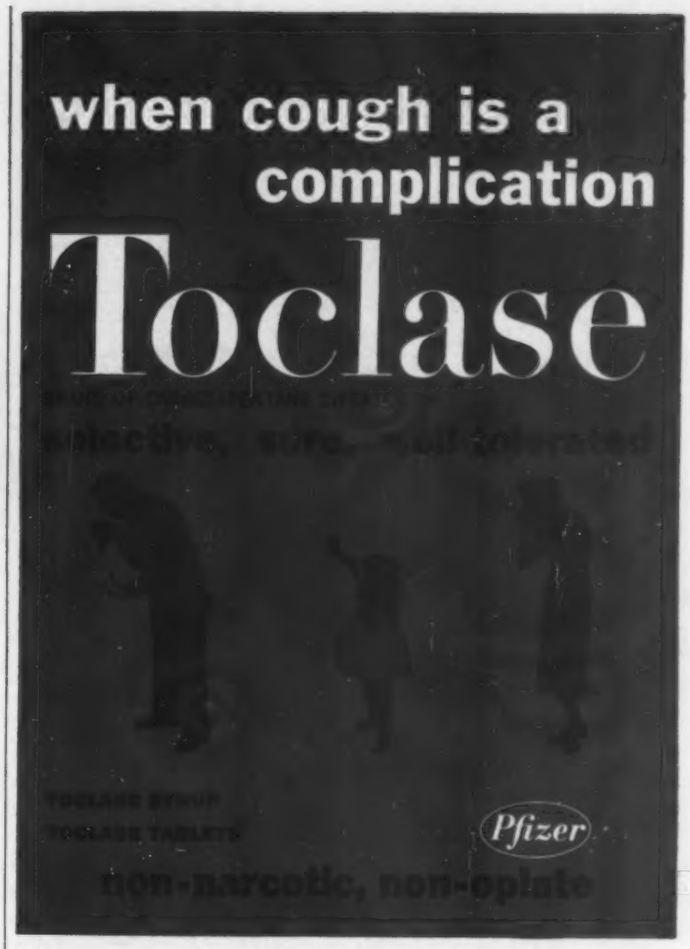

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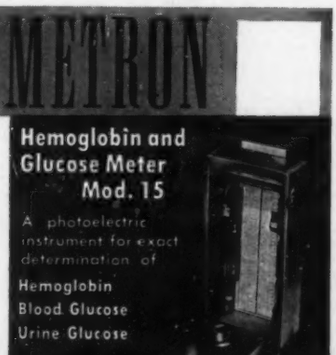

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(Continued from page 78)

INTERNIST—BOARD ELIGIBLE; PREFERABLY CERtified; association of doctors comprised of 28 physicians representing most of medical and surgical specialties; candidate should have subspecialty interest in gastroenterology; broad benefit program. For details please write: J. L. Hanson, Administrator, Lexington Clinic, 190 N. Upper St., Lexington, Kentucky. C

ASSISTANT PATHOLOGIST—PARTICULARLY QUALified in clinical pathology; with interest in teaching and research; for 500 bed GMS hospital+ affiliated with Colorado Medical School residency and research programs; VA prerequisites, salary up to $13,760 at picturesque Albuquerque VA Hospital. Contact: Director Professional Services. C

OTOLARYNGOLOGIST — FOR STAFF OF GROUP practice clinic; serving membership of over 20,000, in Washington, D. C.; prefer diplomate or Board eligible; physician; annual salary open; 1 month vacation; study leave; sick leave; comprehensive retirement plan. Write to: Medical Director, Group Health Association, Inc., 1025 Vermont Ave., N.W., Washington 5, D. C. C

CLINICAL INVESTIGATION — EXCELLENT OPPORtunity with rapidly expanding pharmaceutical company for physician interested in clinical research; experience desirable but not essential; Eastern location; send complete details including age, education, experience, draft status and minimum salary desired. Box 2402 C, % AMA.

PSYCHIATRICS WANTED—SALARY $7570-$12,685 DEpending upon qualifications; 25% additional if Board certified (not to exceed $13,760); approved 3 years psychiatric residency in conjunction with Northwestern University; hourly commuting distance Chicago. Write: Manager, Veterans Administration Hospital+, Downey, Illinois. C

PHYSICIAN—TO JOIN MEDICAL STAFF OF COPPER Company; office in modern well-equipped 50 bed hospital; unfurnished house available; salary plus extra income; must be able to qualify for an Arizona license. For further information write to: Chief Surgeon, Morenci, Arizona, outlining personal and professional background. C

NEUROLOGIST-PSYCHIATRIST—WANTED TO ASSOciate with neurosurgeon, Pacific Northwest. Box 2414 C, % AMA.

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(Continued on page 82)

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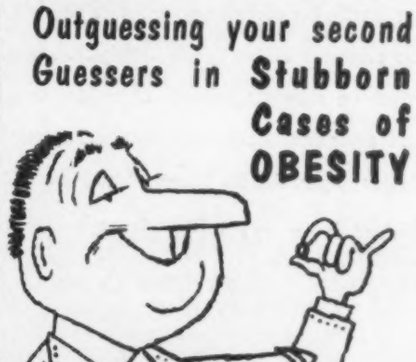

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(Continued from page 81)

MATERNAL AND CHILD HEALTH DIRECTOR — Board certification in pediatrics; administrative experience in public health preferred; $950 to $1150 plus travel expenses; starting salary open. Write to: Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland, Oregon. C

PSYCHIATRIST—ALBUQUERQUE, HIGH, DRY, SUNny for outstanding 500 bed GMS hospital+ affiliated with Colorado Medical School teaching and research programs; government prerequisites, salary to $13,760. Contact: Director Professional Services, VA Hospital, Albuquerque, New Mexico. C

ASSOCIATE MEDICAL DIRECTOR—100 BED TUBERculosis hospital; salary $8500-$9500, complete maintenance. Apply: Medical Director & Superintendent, District One Tuberculosis Hospital, Madisonville, Kentucky, or State Tuberculosis Hospital Commission, New State Office Building, Frankfort, Kentucky. C

INTERNAL MEDICINE—STAFF PHYSICIAN IN 500 bed GM&S hospital+ affiliated with the residency and research program of the University of Colorado Medical School; usual VA prerequisites; salary up to $13,760. Contact: Director of Professional Services, VA Hospital, Albuquerque, New Mexico. C

ASSISTANT WANTED—BY GENERAL PRACTITIONer and surgeon in small community near Columbus; good hospital facilities. Box 2291 C, % AMA.

GENERAL PRACTITIONER—FOR CLINIC IN TOWN of 7,000; to work with 2 other general practitioners; 200 bed general hospital 4 miles away; full partnership offered after 1 year with 11 man partnership which operates 2 other clinics in the area. Contact: East Range Clinic, Eveleth, Minnesota. C

GENERAL PRACTITIONER WANTED — CENTRAL Texas location; 50 bed hospital, 6 man clinic; salary $800; if training in anesthesiology and willing to relieve anesthetist, salary $1000; please include full information and references in 1st letter. Box 2365 C, % AMA.

STAFF PHYSICIAN—IMMEDIATE OPENING IN 150 bed tuberculosis hospital; adequate laboratory facilities, pulmonary function studies, chest surgery; excellent salary, with maintenance, including 3 bedroom, ranch type, residence. Contact: Joseph H. Geyer, MD, Superintendent, Silvercrest Hospital, New Albany, Indiana. C

WANTED—AMERICAN BOARD SPECIALISTS; PHYsicians interested in group or private practice, teaching, research, public health or industrial medicine; National and International services. Burneice Larson, Director, Medical Bureau, 900 N. Michigan Ave., Chicago. C

98 BED GENERAL HOSPITAL — NEEDS HOUSE physician now; to assist in surgery and handling emergencies; $350 per month plus full maintenance. Write or call: Administrator, Bethania Hospital, Wichita Falls, Texas. C

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ANESTHESIOLOGY: (s) Hd dept; 85% of gross; min $36,000; must pay assoc anes; MW. (t) Hd resd trng prog; $13,200-$16,500; W. (u) Hd dept, fee, So.
ASSISTANTS: (d) By GP; very lge pract; S.C. (e) By GP; GP & indus pract; early prtnr; Boston area.
DERMATOLOGY: (t) Assoc w/Dipl, derm; excel tchg & hosp affil; Calif. (u) Dipl, hd dept, $14,000, prtnr; N.Y. State. (v) Dir dept; early prtnr; MW. Dipl to buy derm pract est 12 yrs; % or cash. W.
GENERAL PRACTICE: (s) Assn w/GP; $18-20,000 1st yr; So. (t) 6 man grp; over $10,000, fringe benefits; C. (u) For fine 16 man grp; $15,000; Chgo area. (v) To take over pract est '49; facil 3 hosps; sal then %; Calif. (w) For smal hosp & cl; $12,000, start; Wash State. (x) Assn grp being founded by Dipls; oppor $25-30,000 1st yr; prtnr 2 yrs; Fla. (y) 3rd man, clinic; prtnr 6 mos; NW. (z) Assn 3 GPs & surg; $12,000 & %; nr Los Ang.
INDUSTRIAL MEDICINE: (o) Med dir; to organize prev med prog; lge corp; $14,000 plus exc bonus; oppor advance; E. (p) Asst med dir; $12,000; S.C. or Fla. (q) Med dir; about $15,000; fine dept; MW. (r) MD for Phil mfg co, 4,500 emps.
INTERNAL MEDICINE: (s) Dipl or elig; assn w/8 specialists; $12,000, oppor prtnr; NY State. (t) Assn w/6; $12,000; prtnr, 3 yrs (shld net $20-25,000); Calif. (u) Assn w/Dipl, Med; Mich. (v) Qual GE & Fluoroscopy; hd dept; $20,000, Alaska. (w) Assn w/Dipls, Med, ped & Obgyn; $12,000; 3rd yr, prtnr, worth $20-24,000; SW. (x) Assn 3 man grp; oppor $12-15,000; ftr financially excl; So.
NEUROSURGERY: (j) Some diagnostic neurosurg; grp staffed by 20; W. (k) Chief of Serv; clinical & research, lead'g clinic; new 800 bd hosp; MW.
OALR: (a) Oph; hd dept, 9 Dipls; So. (b) Assoc w/Dipl, Oto; indus area; Calif. (c) Dipl or elig; guar till profitable priv pract; E. (d) Oto; Dipl or elig; 3 man grp; 30-40% of net; St. Louis. (e) Oto; hd dept; oppor $20-25,000; S.W. (f) OALR; Dipl; grp assn, shld net $25-30,000 1st yr; MW.
OB-GYN: (g) Hd dept; grp 6 Dipls; early prtnr, worth about $20,000; MW. (h) Prtnr w/Obgyn; %; Fla. (i) Assn 30 man grp; $15-20,000; E. (j) Assn 5 man grp; new clinic; $15-18,000; oppor prtnr; SW.
ORTHOPEDICS: (e) Hd dept; active fracture serv; $20,000 increases; Calif. (f) Bd qual; assn 20 specialists; SE. (g) For fine 16 man grp; $18,000 1st yr; Chgo area. (h) Hd new dept; 6 mo %, then prtnr; So. (i) Hd dept; % basis; So. Calif.
PATHOLOGY: (k) Chief; 350 bd hosp; lucrative; MW. (l) Dir of lab; 160 bd hosp; N.Y. (m) Assoc; % basis, paying $18-20,000 Ohio. (n) Dipl, both branches; fees; dir dept; So. (o) Dir dept, 600 bed tchg hosp; oppor $30-40,000; So.
PEDIATRICS: (n) Qual hd dept; grp 8 Dipls; NW. (o) Assn w/Asst prof, ped; busy pract; So. Calif. (p) Hd new dept; grp est 30 yrs; MW. (q) Hd dept 8 man grp; E. (r) Hd dept; $14,000; prtnr; W.
PHYSICAL MEDICINE: (f) Hd dept; Dipl; $17-25,000 So. (g) Assn, impor lab & dir proposed dept PM; $15-16,000; SW. (h) Med dir; $15-20,000; Mich.
P & N: (h) Psy; Dipl; $15-20,000; W. (j) Psy; child guidance cl; $15-18,000; oppor tchg; E. (k) Neuro; 50 man grp; E. (l) Neuro; hd dept; $18,000 MidE. (m) NP; Dipl; Assn w/Dipl NP; Calif. (n) NP; hd dept; 12 man grp; serve huge area; West Mtns.
PUBLIC HEALTH: (w) Med dir; combined city-county health prog; req's PH deg; MW. (x) GP; organ & dir county occupational health prog; Calif.
RADIOLOGY: (i) Dir dept; oppor $30-40,000; MW. (m) Dir dept; $25,000 increases; SE. (n) Assoc w/Dipl, Rad; nr Los Angeles. (o) Dipl; well-trnd diag & ther; assoc w/Dipl, Rad; South.
STUDENT HEALTH: (q) Well equip cl & 10 bd hosp; $8,900 increases; Calif. (r) Staff; MW.
SURGERY: (l) Dipl; assn 11 Dipls; Fla. (m) Assn w/3 GPs; $12,000 & %; So. Calif. (n) Distinguished & scholarly; prefer one handicapped; $17,500; NYC. (o) Assoc Chief; $17-20,000; West Virg.
UROLOGY: (o) Dir new dept; 14 man grp; $12,000 prtnr, 2nd yr; MW. (p) Jr. Assoc; 6/grp; Mich. (q) Bd elig; assoc w/MD, expects gross $50,000. E.

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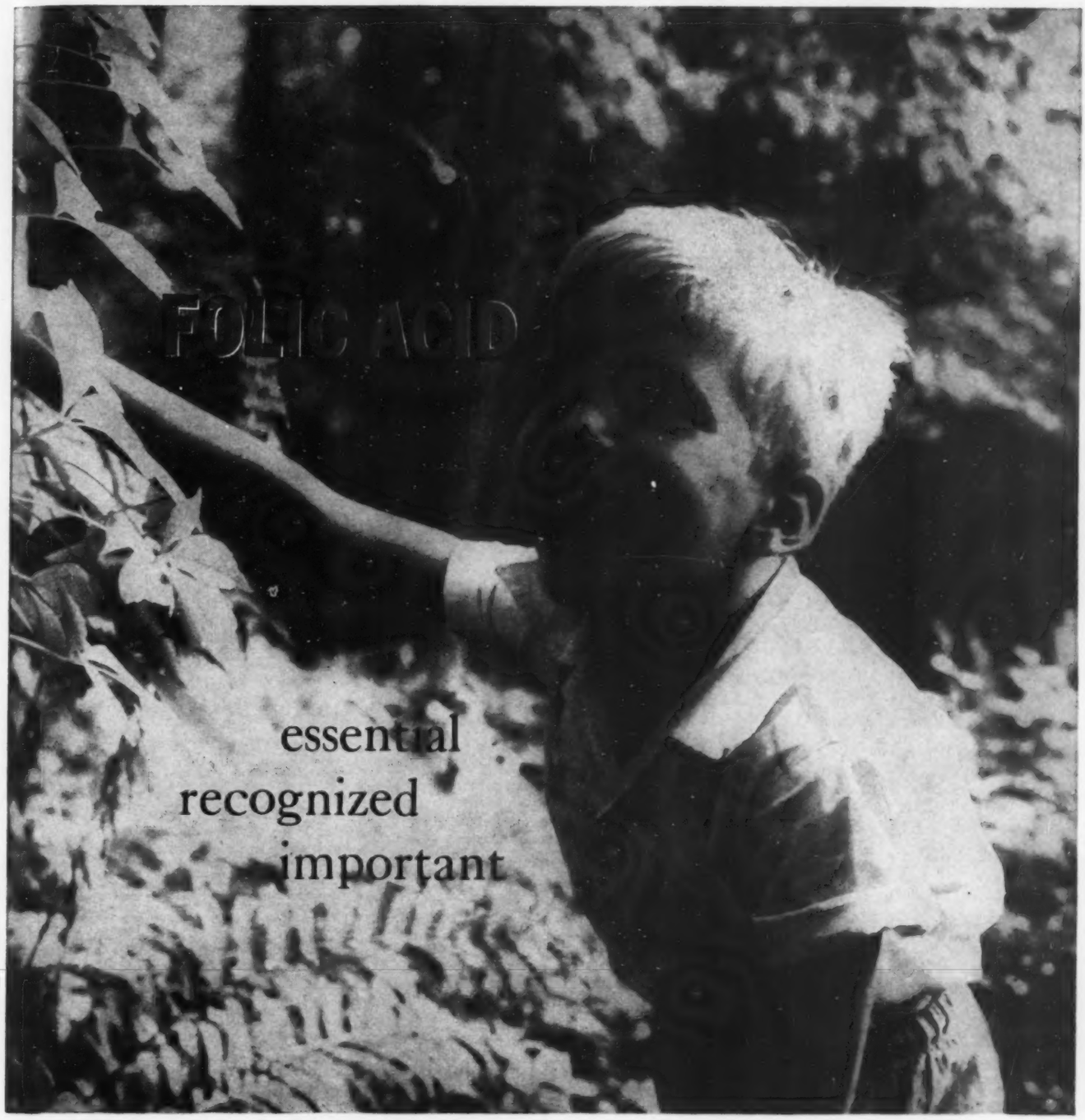
OBSTETRICIAN-GYNECOLOGIST — CERTIFIED OR eligible; 13 man specialty group urgently needs services to head department; group owns 65 bed air-conditioned hospital; early partnership; southern Illinois. Box 2418 C, % AMA

WANTED—PSYCHIATRIST AS CLINICAL DIRECTOR; large State hospital+; must be U. S. citizen, have Ohio license and certified in psychiatry; new house available nominal rent; salary $16,000; no maintenance. Apply: superintendent, State Hospital, Massillon, Ohio. C

ROENTGENOLOGIST—FOR LARGE TEACHING HOSpital+ affiliated with Ohio State University Medical School; citizenship required; salary dependent on qualifications. Write to: Dr. A. Tomasulo, Director, Professional Services, VA Center, Dayton, Ohio. C

(Continued on page 84)



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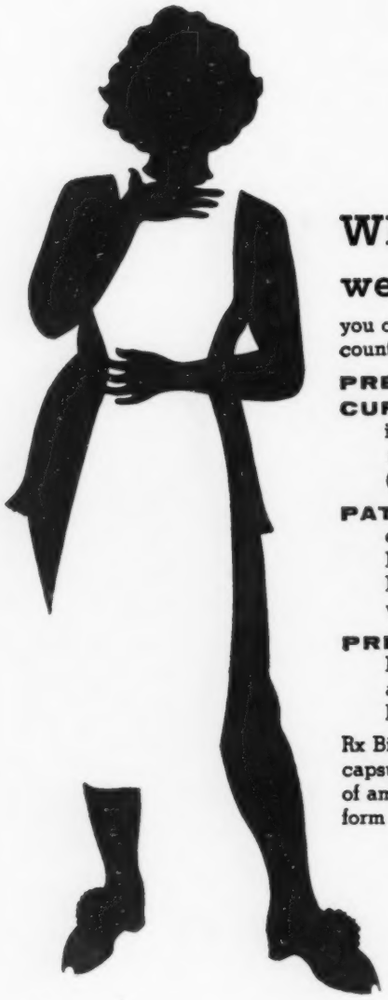

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REFERENCES:

1. Freed, S. Charles; Keating, J.W.; Hays, E.E.—*Annals of Internal Medicine* 44, 1136 (June 1956)
2. Freed, S. Charles—*GP* VII, 63 (1953)
3. Freed, S. Charles and Mizel, M. —*Annals of Internal Medicine* 36, 1492 (1952)

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(Continued from page 82)

OBSTETRICIAN-GYNECOLOGIST — WELL ESTABlished clinic; Southwest; must be graduate of approved medical school; completing accredited residency; under 35; forward biographical data for review. Box 2295 C, % AMA.

WANTED—GENERAL SURGEON; BY INTERNIST IN Illinois town, population 5500; salary $10,000 to $12,000 depending on qualification; partnership in 3 years; prefer man less than 40; living quarters available. Box 2363 C, % AMA.

WANTED—PSYCHIATRISTS AND PHYSICIANS; SALary range to $15,000 depending on qualifications; research and teaching opportunities. For further information contact: Jack A. Wolford, MD, Superintendent, Hastings State Hospital+, Ingleside, Nebraska. C

INTERNISTS AND GENERAL PRACTITIONERS wanted—in 2400 bed hospital+; hourly commuting distance Chicago; salary ranges $7570-$12,685, depending upon qualifications. Write: Manager, Veterans Administration Hospital, Downey, Illinois. C

CALIFORNIA MEDICAL BUREAU AGENCIES—FTR physicians placements, and hospitals and medical properties for sale. 405 E. Green Street, Pasadena, California, and 610 S. Broadway Street, Los Angeles 14, California. C

UROLOGIST — CERTIFIED OR ELIGIBLE; 13 MAN specialty group wishes to establish department; early partnership; give personal and professional qualifications 1st letter; southern Illinois. Box 2417 C, % AMA.

WANTED — FULL TIME PHYSICIAN FOR SOUTHeastern railway; under age 56; give full information as to education, training and experience. Box 2413 C, % AMA.

WANTED — IMMEDIATE OPPORTUNITY FOR ANother general practitioner; in small attractive industrial town in eastern Connecticut near major cities; approved modern hospital. Box 2372 C, % AMA.

PHYSICIANS—WITH ONE OR TWO YEARS UROLOGical residency who desire completion of genito-urinary training. Apply: Director of Administration, University Hospitals*+, 2065 Adelbert Road, Cleveland 6, Ohio. C

DOCTORS — FOR PACIFIC NORTHWEST, WEST Coast and California appointments, write Maria Gizzi, Pacific Coast Medical Bureau, Agency, 1404 Central Tower Bldg., San Francisco 3 Confidential—Prompt. C

OTOLARYNGOLOGIST — FOR GROWING AREA IN central Washington; 7 man group; Board certified or eligible; salary open; potential partnership after 2 years; no capital required. Box 2368 C, % AMA.

WANTED — WELL-QUALIFIED GENERAL PRACTItioner; Minnesota; excellent hospital facilities; unusual opportunity for the right man. Box 2425 C, % AMA.

WANTED — OBSTETRICIAN-GYNECOLOGIST; ASSOciation with 9 man group, leading to partnership; salary $16,000 with bonus, no capital outlay needed; professional and personal data requested. Box 2289 C, % AMA.

WANTED—YOUNG PHYSICIAN INTERESTED IN OBstetrics and surgery; to associate with small group; rich farming area in northern Minnesota with excellent hospital and school facilities. Box 2335 C, % AMA.

WANTED—UNMARRIED, FEMALE PHYSICIAN; TO assist in busy, Northern Ohio obstetrical and gynecologic practice; special training welcome but not necessary; salary first, association later. Box 2220 C, % AMA.

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HOUSE STAFF OPENINGS—CHILDREN'S HOSPITAL of Winnipeg; 1957-1958; applications are now being received for appointment to the following positions for the period July 1, 1957-June 30, 1958; 1, assistant (2nd year) resident pediatrics (1); 2, resident pathology (1); 3, senior interns (first year resident) pediatrics (6). Experience in these positions is acceptable to the Royal College of Physicians & Surgeons of Canada as preparation toward fellowship or certification in the specialty (the pathology residency qualifies for either the specialty of pathology or pediatrics). Applications should be in the hands of the chairman of the intern committee before December 30, 1956; application forms and information brochures will be forwarded on request. Wallace Grant, MD, Chairman, Intern Committee, Children's Hospital, Winnipeg, Manitoba, Canada. D

PSYCHIATRIC RESIDENCIES — VACANCIES ARE available for 5 1st year, 5 2nd year, and 5 3rd year residents in psychiatry, beginning July 1, 1957, at the Philadelphia Psychiatric Hospital+, Ford Road and Monument Avenue, Philadelphia 31, Pennsylvania; approved by AMA, AHA, ACS for 3 years training in psychiatry, both clinical and didactic, as preparation for Boards; this is a 150 bed hospital, treating only acute psychotic and psychoneurotic patients; analytically oriented; exchange residency with general hospital for neurology and child psychiatry available; residents are under constant supervision and cases are controlled; for further details write for brochure and application. Address communication to: Dr. Samuel Cohen, Medical Director. D

RESIDENCY IN EXPERIMENTAL MEDICINE — APproved by American Board of Internal Medicine and American Medical Association; 1 year residency in small research hospital+ devoted to basic, diagnostic, and therapeutic studies, utilizing radioisotopes; hematologic disorder, thyroid disease, and neoplastic disease are emphasized; opportunity for individual and group research, both clinical and laboratory; formal training in radioisotopes included; 2 years' previous training in internal medicine desirable; opening available for January 1957 or later; salary $2,000 per year plus $4 per day in lieu of maintenance. Apply: Chief of Clinical Services, Medical Division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee. D

AVAILABLE JULY 1, 1957—APPROVED RESIDENcies in medicine and obstetrics-gynecology; surgical residencies approved for training in preparation for surgical specialties; 224 bed general hospital*+, modern, well-equipped; resident training program; house staff allowed full range under proper medical supervision; full maintenance and uniforms; monthly stipend: assistant residents $250, residents $300. The Lawrence and Memorial Associated Hospitals, New London, Connecticut, Hilliard Spitz, MD, Chairman, Committee on residents. D

PATHOLOGY RESIDENCIES — FOUR YEAR APproved program in clinical pathology and pathologic anatomy, first or second year, and third year residencies available now; starting July 1, 1957, 1 vacancy for each year; salary; first and second year $300 per month, including full maintenance; third year, $400; fourth year $450; active training program; 760 bed general hospital*+; applicant must be U. S. citizen, have or be eligible for California license. Write: Pathologist, Sacramento County Hospital, Sacramento, California. D

RADIOLOGY—APPROVED RESIDENCY AVAILABLE January 1, 1957 and July 1, 1957; 20,000 diagnostic examinations a year, radioisotope laboratory, pathology approved for 4 years, as are all other specialties; special course in radiation physics; stipend, $110 to $125 for assistant residents, $150 for residents, with room and board. Apply: Executive Director, Sinai Hospital of Baltimore*+, Inc., 1714 East Monument Street, Baltimore 5, Maryland. D

RESIDENT IN PSYCHIATRY—PINEL FOUNDATION+ offers 3rd and 4th year residencies in psychoanalytically oriented treatment unit; treatment program particularly emphasizes intensive psychotherapy and milieu therapy; individual and group supervision provided by members of hospital staff and consulting staff; 3rd year salary $4,800, 4th year, $6,000. Address inquiries to: Medical Director, Pinel Foundation, 2318 Ballinger Way, Seattle 55, Washington. D

PSYCHIATRY RESIDENCIES AVAILABLE — IN 655 bed university-teaching, general hospital*+ with 60 bed acute treatment psychiatric unit fully approved for 3 years training; experience includes dynamically-oriented psychotherapy with children and adults; shock therapies and neurologic training; salary range $3000-4000 annually. Address inquiries to: Medical Director, Albany Hospital, Albany, New York. D

RESIDENCY IN THORACIC SURGERY—TWO YEARS approved; training provided in thoracic and cardiovascular surgery; stipend $260 per month, 1st year; $344 per month second year, less maintenance; also fellowship in thoracic surgery; stipend $200 month, less maintenance. Apply: Dr. I. Kass, Assistant Medical Director, National Jewish Hospital+, Denver, Colorado. D

(Continued on page 88)

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References: 1. Farah, Luis: Int. Rec. of Med. & Gen. Prac. Clin. **169**:379 (June) 1956. 2. Shalowitz, M.: Geriatrics, July, 1956. 3. Robinson, H. M. et al: J.A.M.A. **161**:604 (June 16) 1956.

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1. Arnold, H. L., Jr.: Postgrad. Med. *16*:492 (Dec.) 1954.

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(Continued from page 84)

RADIOLOGY RESIDENCY—MAJOR TEACHING CENter*+ for medical school; position available January 1 and July 1, 1957; starting stipend $100 per month plus maintenance. Apply: Department of Radiology, State University of New York, Downstate Medical Center, 450 Clarkson Avenue, Brooklyn 3, New York. D

RESIDENCY—ANESTHESIOLOGY; UNIVERSITY APpointment, two years active teaching program; adequate clinical experience in all phases of anesthesia; affiliation with Veterans Administration. Paul H. Lorhan, MD, University of Kansas Medical Center*+, Kansas City, Kansas. D

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RESIDENCY IN RADIOLOGY—400 BED HOSPITAL*+ affiliated with medical school; fully-approved residency with excellent opportunity for training; available January 1, 1957. Reply: Director, Department of Radiology, Mount Sinai Hospital, Chicago 8, Illinois. D

FIRST YEAR RESIDENT IN OBSTETRICS-GYNEcology—available January 1, 1957; 3 year approval. Evangelical Deaconess Hospital*+, 4229 Pearl Road, Cleveland 9, Ohio. D

RESIDENT FOR GENERAL PRACTICE—90 BED MODern hospital; JCAH approved; open July 1, 1957; stipend $225 per month plus full maintenance. Apply: Leota L. Harnden, Supt., Grace Hospital, 2307 W. 14th St., Cleveland 13, Ohio. D

WANTED—FOURTH YEAR SURGICAL RESIDENT; graduates approved schools only; for 350 bed midwestern hospital*+, with full 4 year approval general surgery program; stipend $375 monthly. Box 2428 D, % AMA.

APPROVED RESIDENCIES IN GENERAL SURGERY —internal medicine and pathology; available July 1, 1957; liberal stipend; active educational program. Contact: Director of Medical Education, Providence Hospital*+, Detroit 8, Michigan. D

PSYCHIATRIC RESIDENCIES — APPROVED+ AMA; up to $8125 to start; housing; time off for psychoanalysis; Boston area; give qualifications. Box 2447 D, % AMA.

AVAILABLE — ASSISTANT RESIDENCY INTERNAL medicine; 3 year Board approval in 500 bed Ohio hospital*+, located in rapidly expanding industrial community. Box 2448 D, % AMA.

ROTATING INTERNSHIPS OF ONE YEAR—AVAILable July 1, 1957; newly enlarged 400 bed hospital*+; stipend $125 per month and maintenance. Methodist Hospital, Peoria, Illinois. D

RESIDENCIES AVAILABLE—APPROVED RESIDENcies in medicine, surgery, pediatrics, obstetrics and gynecology, and general practice available July 1, 1957; 294 bed, 43 bassinet city operated hospital*+; annually 14,000 in-patients, 8,000 out patient visits, 12,000 emergency room visits; approved 15 interns; total house staff 30; teaching program well organized and operating; fundamentals and objectives of program available on request; beginning salary $300. Write: Director, City Hospitals, % City Memorial Hospital, Winston-Salem, North Carolina. D

THE CHILDREN'S HOSPITAL, HALIFAX, NOVA Scotia would be pleased to accept applications for the following posts for the year 1956-57 at an early date; 1. medical resident—salary $150 per month plus full room and board; 2. assistant medical resident—$125 per month plus full room and board; this hospital is accepted by the Royal College of Physicians and Surgeons to provide 2 years post-graduate training in the specialty of pediatrics. Please direct all inquiries to: The Administrator, F. H. Silversides, B.Sc.PH., Administrator, The Children's Hospital, Halifax, Nova Scotia, Canada. D

RADIOLOGY RESIDENCY—FULLY APPROVED FOR 3 years training; teaching general hospital*+; 800 beds out patient visits 63,000 yearly; X-ray diagnostic examinations, 38,053 in 1955; stipend and full maintenance; organized teaching program in diagnostic and therapeutic radiology including isotopes; affiliated with New York University-Bellevue Medical Center; 4 full-time diplomates; openings January 1, 1957 and September 1, 1957. Address: Director of Radiology, St. Vincent's Hospital, New York 11, New York. D

RESIDENT IN PATHOLOGY — SALARY $325 PER month 1st year, graded increase each succeeding year; full maintenance; available for 1 to 4 years training; 1 year Board approved large departmentalized routine and research laboratory; 625 bed general hospital*+; 6,000 surgicals and 300 autopsies per year; under supervision of 2 pathologists certified in pathologic anatomy and clinical pathology; available July 1st. Apply: Dr. Robert C. Grauer, Director, Singer Laboratory, Allegheny General Hospital, Pittsburgh, Pennsylvania. D

PSYCHIATRY AND NEUROLOGY RESIDENCIES — present vacancies for psychiatry and neurology residents in the fully-approved 3 year program, affiliated with the New York University Bellevue Medical Center exists at the New York University Bellevue Hospital+; U. S. citizenship, graduation from an approved medical school, and a minimum of 1 year of approved internship required. Candidates may apply to: Manager, Veterans Administration Hospital, 408 First Avenue, New York, New York. D

WANTED—SURGICAL RESIDENT; BY A 17 MAN midwest group, beginning July 1, 1957; group composed of young diplomates, formerly instructors and assistant professors in university medical schools; 1 year program designed to train one to carry out the common surgical procedures useful in general practice; more than adequate salary; designed to meet the needs of outstanding young men desiring to do general practice in smaller communities. Box 2330 D, % AMA.

APPROVED THREE YEAR RESIDENCIES IN PSYchiatry—new GM&S hospital+; well-organized teaching program; affiliated with Washington University School of Medicine; all types of psychiatric experience represented, including supervised dynamically oriented Psychotherapy, psychosomatic medicine, child guidance clinic, etc.; attractive career residency program available. Write: Manager, VA Hospital, 915 North Grand Blvd., St. Louis 6, Missouri. D

APPROVED RESIDENCIES IN INTERNAL MEDICINE, surgery, psychiatry, obstetrics-gynecology, and pathology; available in July to veteran physicians who have completed their military obligation; beginning stipend $150 per month plus maintenance and uniforms for self; travel allowance of $150 at beginning and termination of service. Address inquiries to: Medical Director, The Queens's Hospital*+, P. O. Box 614, Honolulu 9, Hawaii. D

APPROVED RESIDENCIES IN MEDICINE, PSYCHIatry, pulmonary diseases and neurology—available July 1, 1957; 684 bed county hospital*+ near New York City; exceptional educational opportunity; only applicants who have completed one year approved internships will be considered; stipend $200 monthly plus complete maintenance. Apply: Superintendent, Bergen Pines County Hospital, Paramus, New Jersey. D

PSYCHIATRIC RESIDENCY VACANCIES—APPROVED 3 year residency in conjunction with Northwestern University Medical School; extensive training program in clinical psychology, vocational counseling, social service, and related fields; salary ranges from $2840-$3550; and for career residents $7570-$10,065; hourly commuting distance Chicago; citizenship required. Write: Manager, Veterans Administration Hospital+, Downey, Illinois. D

INTERNAL MEDICINE, PATHOLOGY, SURGERY AND chest diseases—in 500 bed GM&S hospital+; delightful all-year climate, outstanding teaching program under Colorado Medical School Dean's Committee, with affiliation for necessary female and pediatric training; citizenship required; housekeeping facilities available at modest cost. Contact: Director, Professional Services, VA Hospital, Albuquerque, New Mexico. D

ANESTHESIOLOGY RESIDENCIES — APPROVED 2 year active teaching program with unusually wide clinical experience; opportunities for clinical, teaching and research appointments in hospital and medical college after completion of training. Write: C. M. Landmesser, MD, Director of Anesthesiology, Albany Medical Center,*+ Albany, New York. D

SURGICAL RESIDENT—AVAILABLE JULY 1, 1957; 684 bed county hospital*+ near New York City; exceptional educational opportunity; only applicants who have completed 1 year approved internships will be considered; stipend $200 monthly plus complete maintenance. Apply: Superintendent, Bergen Pines County Hospital, Paramus, New Jersey. D

AVAILABLE IMMEDIATELY — OWING TO EXPANsion in facilities, 1 approved residency in pulmonary diseases; training is provided in both tuberculous and nontuberculous chest diseases; stipend varies between $250 to $350 per month less maintenance. Contact: Dr. I. Kass, Ass't. Medical Director, National Jewish Hospital+, Denver, Colorado. D

(Continued on page 92)

reports of clinical studies

1 "I have used meprobamate in my general psychiatric practice since April, 1955, and believe it to be [a] drug of choice for relief of tension, anxiety and insomnia."

Lemere, F.: Northwest Med. **54**: *1098, 1955.*

2 ". . . the patient [taking Miltown] never describes himself as feeling detached or 'insulated' by the drug. He remains . . . in control of his faculties, both mental and physical, and his responsiveness to other persons is characteristically improved."

Sokoloff, O.J.: A.M.A. Arch. Dermat. In press.

3 "Of special importance is the fact that Miltown does not appear to affect autonomic balance—which in alcoholics is often unstable . . ."

Thimann, J. and Gauthier, J.W.: Quart. J. Stud. Alcohol. **17**: *19, 1956.*

4 "The [relative] absence of toxicity, both subjectively and objectively, is an important feature in favor of Miltown. In addition, there were no withdrawal phenomena noted on cessation of therapy, whether it was withdrawn rapidly or slowly."

Borrus, J.C.: J.A.M.A. **157**: *1596, 1955.*

5 "Miltown is of most value in the so-called anxiety neurosis syndrome, especially when the primary symptom is tension . . . Miltown is an effective dormifacient and appears to have . . . advantages over the conventional sedatives except in psychotic patients. It relaxes the patient for natural sleep rather than forcing sleep."

Selling, L.S.: J.A.M.A. **157**: *1594, 1955.*

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THE ORIGINAL MEPROBAMATE

THE MILTOWN MOLECULE

discovered and introduced

by Wallace Laboratories, *New Brunswick, N.J.*

2-methyl-2-n-propyl-1,3-propanediol dicarbamate—U.S. Patent 2,724,720

SUPPLIED: ***400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.***

Literature and Samples Available on Request

The Bright Side

by E. K. H.

Walter Winchell admits it's an oldie but passes on this one about the attractive woman psychiatrist, at a convention, who was being pinched by the man seated next to her. Very much annoyed, she was about to give him a bawling out when she changed her mind.

"Why should I get angry?" she decided. "After all—it's *his* problem."

✣

Sign of the times: A young mother was examining a toy with some misgivings. "Isn't it rather complicated for a small child?" she asked.

"It's an educational toy, madam," replied the clerk. "It's designed to adjust a child to live in the world of today. Any way he puts it together, it's wrong!"

✣

Newsmen, gathered around the old village character on his 90th birthday, were shown some faded pictures of him with a group of prospectors in the Klondike.

"Hey, Pop," said a reporter, pointing to a disreputable old sourdough with a patch over his eye, "isn't that One-Eyed Pete, the gambler who was found murdered in an old mine shaft back in '98?"

"Yep," nodded the oldster.

"Well, what do you know?" answered the reporter. "Pop, you've sure been around for a long time, and you're still going strong. To what do you attribute your long life?"

"Well," giggled the old man reminiscently, "I guess I owe it to three things. I never smoked, I never drank—and the cops never caught ol' Pete's murderer."

✣

The village judge was about to deliver his summing up of the case when he was surprised to notice there were only 11 men in the jury box.

"Where is the 12th juryman?" he demanded, bewildered.

"It's all right, yer honor," the foreman answered genially. "He was called away to his store, but he left his verdict here with me!"

✣

"Dad," a small boy proudly reported to his father, "you know what I did today? I put a stick of dynamite under a teacher's chair."

"No!" gasped the father. "Well, you go right back to school and apologize!"

"School?" grinned the boy. "What school?"

✣

Jan Murray says a young actress called her mother long distance from Hollywood.

"I'm so happy, Mother," she cried breathlessly. "John has asked me to be his *first wife*."

✣

It's still possible to leave Las Vegas with a small fortune, says Joe I. Lewis—providing you came there with a large one.

The Christmas season being on the way, this one's beginning to make the rounds:

Seems a small wind-up toy in the shape of a clown caught the fancy of five-year-old Dickie when he was foraging under the tree on the morning of the Great Day. He picked it up, turned it over once or twice and then looked up at his mother in bewilderment.

"What is it?" he asked.

"It's supposed to be a clown, dear," she replied.

Dickie studied it carefully for another moment. "Well, then," he demanded, "why *isn't* it?"

✣

In answer to the age-old question, "What reading matter would you take along if you were to be marooned on a desert island?" a brilliant young co-ed answered:

"A tattooed sailor!"

✣

We like Quote's story of the two middle-aged Boston ladies who were taking their first bus trip across the country. As they stopped for gas the third day out, the passengers disembarked.

One of the ladies, wanting a piece of candy, dropped a coin in a machine and pulled. Nothing happened. Her friend shook the machine, but nothing emerged. Finally she walked over to the magazine stand and complained to the attendant.

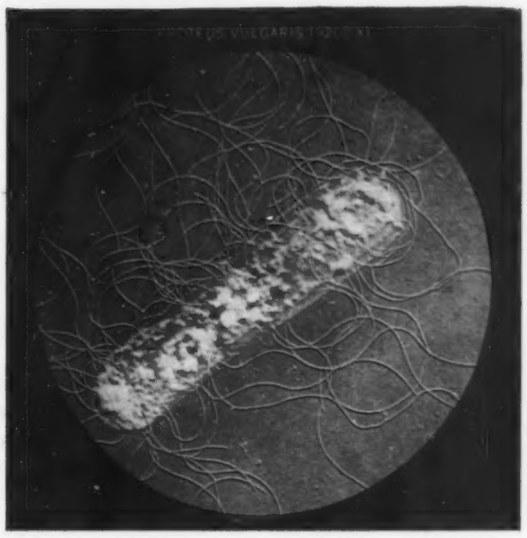
"We put a nickel in the machine but we didn't get our cherry drops."

"Lady," was the answer, "that ain't candy—you're in Las Vegas now."

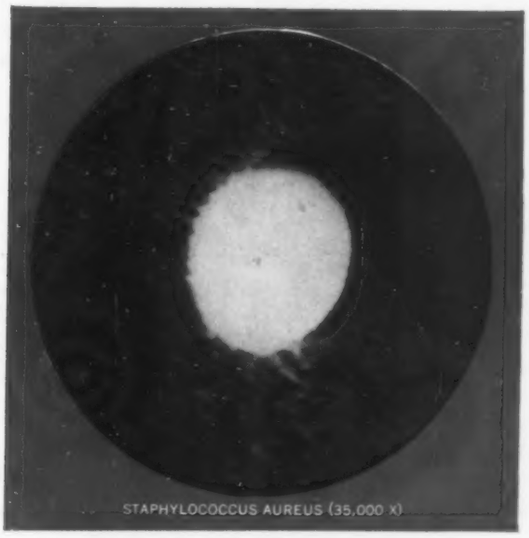
✣

A man watched his wife unload after a shopping spree. "It's amazing," he said finally, "the things women would rather have than money."

"I'm leaving town for a week . . . will you save a diagnosis or two for me?"



Most effective where the broad spectrums most often fail



ALBAMYCIN*

(Brand of Novobiocin Sodium)

This new Upjohn discovery is most effective where the broad-spectrum antibiotics most often fail: against the treacherous *Staph.* and *Proteus.* The clinical effectiveness has been demonstrated in a wide range of indications, including upper respiratory tract infections, lower respiratory tract infections, urinary tract infections, localized suppurative processes, certain eye and ear infections, and severe systemic infections.

Other significant Albamycin advantages: it produces high and prolonged blood levels on oral dosage, and no monilial superinfection or perianal pruritus has been reported to date.

Dosage: The recommended dose in adults is 1 capsule (250 mg.) every six hours or 2 capsules (500 mg.) every twelve hours, continued for at least forty-eight hours after the temperature has returned to normal and all evidence of infection has disappeared. In severe or unusually resistant infections, 0.5 Gm. every six hours or 1 Gm. every twelve hours may be employed.

The dose for children on similar schedules is 15 mg. per kilogram of body weight per day for moderately acute infections, and it may be increased to 30 to 45 mg. per kilogram of body weight per day for severe infections.

Available: 250 mg. capsules in bottles of 16.

*TRADEMARK, REG. U.S. PAT. OFF.

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PHYSICIANS CASUALTY AND HEALTH ASSOCIATIONS
OMAHA 2, NEBRASKA

SINCE 1902

(Continued from page 88)

WANTED—JULY 1, 1957; TWO FIRST YEAR RESIdents and 1 second year resident for active, fully-accredited obstetrical and gynecological department; 95% house cases; objective and well-organized clinical teaching program supervised by diplomates of the American Board of obstetrics and gynecology; salary open. Box 2423 D, % AMA.

APPROVED RESIDENCIES—INTERNAL MEDICINE: available quarterly, Veterans Administration Center+, Dayton, Ohio; 3-4 year program, citizenship required; affiliated and supervised by Ohio State University Medical School, salary $2840-$4600 per year; approved for benefits under Public Law 550. Apply: Dr. S. Simerman, Chief, Medical Service, VA Center, Dayton, Ohio. D

WANTED—RESIDENTS IN PSYCHIATRY; 3 YEAR fully approved training program offered by Stritch School of Medicine, Loyola University, Chicago, Illinois, and affiliated hospitals. Write for information to: Doctor John J. Madden, Chairman, Department of Neurology and Psychiatry, 706 South Wolcott Avenue, Chicago, Illinois. D

CHIEF RESIDENT PHYSICIAN—IN INTERNAL MEDicine; to supervise house staff of 21 physicians; 684 bed county hospital; unusual opportunity for clinical experience; salary $300 monthly plus complete maintenance and uniforms; available July 1, 1957. Apply: Superintendent, Bergen Pines County Hospital, Paramus, New Jersey. D

RESIDENTS IN RADIOLOGY FOR JULY 1, 1957; large hospital+ with full-time staff qualified radiologists and consultants; affiliated with medical schools; fully approved 3 year course in X-ray diagnosis, X-ray and radium therapy and radioisotopes. Write to: Chief, Radiology, V. A. Hospital, Bronx, New York. D

ANESTHESIOLOGY RESIDENCIES—AT UNIVERSITY of Minnesota Hospitals, Minneapolis Veterans Administration Hospitals and associated hospitals; an opening every 4 weeks. Address: Frederick H. Van Bergen, MD, Director of Anesthesiology, University of Minnesota Hospital, Minneapolis, Minnesota. D

RADIOLOGY RESIDENCIES — FULLY APPROVED 3 year residencies in radiology available; 30,000 diagnostic examinations and 7,000 therapy treatments per annum; active department under full-time direction. Apply to: Dr. S. Schwartz, Jewish Hospital of Brooklyn,*+ 555 Prospect Place, Brooklyn, New York. D

APPROVED ROTATING INTERNSHIPS—1 YEAR INternship July 1, 1957; 684 bed county hospital*+ near New York City; exceptional educational opportunity; only applicants of approved medical schools will be considered; stipend $100 monthly plus complete maintenance. Apply: Bergen Pines County Hospital, Paramus, New Jersey. D

PEDIATRIC RESIDENTS OPEN—ONE JANUARY 1957, 4 July 1957; women residents acceptable; 100 bed; AMA approved 2 years; $200 to $300 monthly; under direction of Doctor Irvine McQuarrie. Write: Administrator, Children's Hospital+, Honolulu, Hawaii. D

PEDIATRIC RESIDENCY—IN FULLY APPROVED 100 bed pediatric hospital; teaching unit, University of Nebraska and Creighton University Schools of Medicine and their graduate schools; an active acute service; eligibility for license required. Write: Administrator, Children's Memorial Hospital, Omaha 5, Nebraska. D

PEDIATRIC AND MEDICAL RESIDENT—AVAILABLE July 1, 1957; 1 year approved program in medicine; 2nd year pending following inspection; 2 year approved program in pediatrics; both programs affiliated with large charity hospital. Apply: Administrator, Baptist Hospital*+, Nashville, Tennessee. D

ANESTHESIOLOGY — APPROVED TWO YEAR PROgram; optional 3rd year university and city hospital center. Apply to: Louis R. Orkin, MD, Department of Anesthesiology, Bronx Municipal Hospital*+ Center, New York 61, New York. D

OPENING RECENTLY APPROVED RESIDENCY IN urology—500 major operative 2000 cystoscopic procedures in 1955; research lab. Contact: J. Fenimore Cooper, MD, Kaiser Foundation Hospital*+, 4867 Sunset, Los Angeles, California. D

ANESTHESIOLOGY RESIDENCY — APPROVED TWO year integrated didactic and clinical program available now; complete maintenance and stipend. Apply: S. N. Surks, MD, Chief of Anesthesiology, Long Island Jewish Hospital*+, New Hyde Park, New York. D

ANESTHESIOLOGY RESIDENCIES—UNIVERSITY OF Utah and affiliated hospitals+; also VA career residency; next vacancy June, 1957. Contact: Carter M. Ballinger, MD, Division of Anesthesiology, University of Utah, Salt Lake City, Utah. D

OPPORTUNITY—FOR RESIDENCY TRAINING FOR A limited number of physicians starting January 1957 or July 1957; accredited for 2 years training. For further information contact: Jack A. Wolford, MD, Superintendent, Hastings State Hospital,+ Ingleside, Nebraska. D

ANESTHESIOLOGY RESIDENCY — BOARD APproved; 380 bed hospital*+; all types of surgery; 11,000 anesthetics per year; liberal stipend. Write: Dr. Lloyd H. Mousel, Director of Anesthesia, Swedish Hospital, Seattle, Washington. D

APPROVED RESIDENCY IN OBSTETRICS-GYNECOLogy—first, second or 3rd year available; stipend $200-$250 with full maintenance and uniforms. Write: Administrator, Hollywood Presbyterian Hospital,*+ 1322 N. Vermont Ave., Los Angeles 27, California. D

APPROVED RESIDENCY IN OTOLARYNGOLOGY — maxillo-facial surgery and bronchoesophagology available July 1, 1957; North Carolina Baptist Hospital*+ affiliated with the Bowman Gray School of Medicine, Winston-Salem, North Carolina; salary. D

FIRST, SECOND AND THIRD YEAR APPROVED residencies in internal medicine available; stipend $200-$250 with full maintenance and uniforms. Write: Administrator, Hollywood Presbyterian Hospital,*+ 1322 N. Vermont Ave., Los Angeles 27, California. D

INTERNS WITH EXPERIENCE WANTED—160 BED modern progressive, general voluntary hospital; surgery is particularly active; maintenance plus $300 monthly. Adelphi Hospital, 50 Greene Ave., Brooklyn 38, New York. D

FIRST, SECOND OR THIRD YEAR APPROVED RESIdency in urology available—stipend $200-$250 with full maintenance and uniforms. Write: Administrator, Hollywood Presbyterian Hospital,*+ 1322 N. Vermont Ave., Los Angeles 27, California. D

INTERNS WANTED—BEGINNING JULY 1, 1957; 245 bed general hospital*+; rotating service; all services very active; salary $100 per month plus full maintenance. Evangelical Deaconess Hospital, 4299 Pearl Road, Cleveland 9, Ohio. D

HOUSE PHYSICIAN—123 BED GENERAL HOSPITAL; northern New York State; salary plus maintenance; no Exchange Visitor program. Apply: D. J. Thomas, Executive Director, Nathan Littauer Hospital, Gloversville, New York. D

LOCUM TENENS WANTED

LOCUM TENENS WANTED — WANTED FOR THREE weeks to take over a very active practice; leaving January 30th for a hunt in South America. Dr. C. H. Rothfuss, 574 Rahway Avenue, Woodbridge, New Jersey. G

WANT ENERGETIC AND PLEASANT DOCTOR — TO take over general practice; in central Indiana; for 2 years; can net $24,000 yearly; may consider partnership thereafter; please answer giving age, experience, and professional references. Box 2424 G, % AMA.

LOCUM TENENS WORK WANTED

LOCUM TENENS—FEBRUARY-JUNE, 1957; GRADUate SLU '53; previous experience obstetrics-gynecology, medicine; Service separation January; Missouri license, DNB. Address inquiries: John McGee MD, 2933 Washington, Granite City, Illinois. H

SITUATIONS WANTED

CLINICAL MANAGER—BS BUSINESS-ADMINISTRAtion; MS hospital administration; 7½ years hospital experience including years hospital-administrator residency, 18 months assistant administrator, 1000 bed teaching hospital; seeks large, established group-clinic; any locality; early 30's; Nominee ACHA. Woodward Medical Bureau, 185 N. Wabash, Chicago 1, Illinois. I

ANESTHESIOLOGIST — MD WESTERN RESERVE; competing residency. 500 bed hospital; seeks fee for service connection; prefers Northern Ohio; also Pennsylvania, California, Indiana, Michigan; licensed Ohio, California; age 29. Woodward Medical Bureau, 185 N. Wabash, Chicago, Illinois. I

(Continued on page 96)

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This patient, age 74, developed a left ventral hernia following surgery 14 years previously. A left inguinal hernia resulted from the long wearing of a cast following a hip injury 3 years ago. The usual surgical supports proved ineffective so her doctor decided to give Spencers a try! Her Spencers — designed, cut and made *for her* to solve *her* problems — give safe, comfortable and effective control of the hernias, improve and maintain posture, protect and support the weak muscles of old age!

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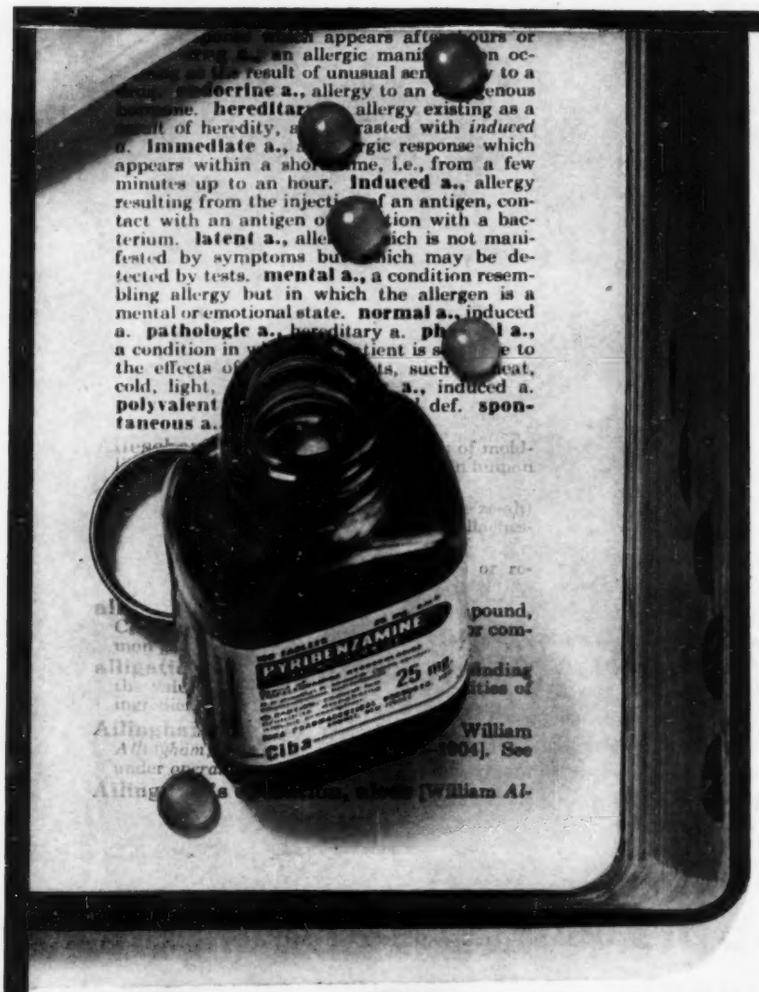
In Allergy



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Shortly after antihistaminic therapy was introduced, Pyribenzamine was chosen as a standard among 17 antihistaminics compared for their power to inhibit histamine flare.[1] Six years later, Pyribenzamine still was "probably prescribed more widely than any other histamine antagonist."[2] Effectiveness in controlling edema, erythema and whealing has made Pyribenzamine an enduring antihistaminic standby in such conditions as allergic dermatitis and rhinitis, urticaria, serum sickness and drug reactions.

1. Lovejoy, H. B., Feinberg, S. M., and Canterbury, E. A.: J. Allergy *20*:350 (Sept.) 1949. 2. Goodman, L. S., and Gilman, A.: *The Pharmacological Basis of Therapeutics*, 2nd Ed., The Macmillan Company, New York, 1955, p. 660.

Pyribenzamine®

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Dosage: One or two 50-mg. tablets as required. **Supply:** *Tablets*, 50 mg. (scored) and 25 mg. (sugar-coated).

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for a restful night...

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smoothly hypnotic nightcap

(brand of heptabarbital)

Only recently introduced...but already meeting a high degree of acceptance...MEDOMIN provides distinctive clinical advantages, both as hypnotic and sedative.

produces sound, refreshing sleep As a hypnotic, MEDOMIN gently "lulls" the patient into a sound, refreshing sleep that usually lasts throughout the night[1,7,15,19,22] and is seldom followed by any undesirable "hang-over" effect.[4,6,14,17,21]

calms the tense or anxious patient As a daytime sedative, MEDOMIN in low doses has demonstrated excellent tranquilizing properties. Nervous tension is relieved,[2,14,15] and need for soporifics at bedtime is frequently obviated.[2,14] Improvement in associated hypertension has also been noted.[19,21]

Literature and Samples Available to Physicians on Request.

MEDOMIN® (brand of heptabarbital); Scored tablets of 50 mg. (pink), 100 mg. (yellow), and 200 mg. (white).

Recommended Dosage: As a hypnotic, 200-400 mg.; as a sedative, 50-100 mg. two or three times daily.

bibliography

(1) Aisslinger, B. E.: Therap. Umschau *3*:89, 1946. (2) Beno, N.: Praxis *38*:814, 1949. (3) Brodie, B. B.; Burns, J. J., and Chenkin, T.: Personal communication. (4) Brusca, D. D.: J. Nerv. & Ment. Dis., in press. (5) Fazekas, J. F., and Koppanyi T.: To be published. (6) Fritsche, R.: Praxis *31*:740, 1942. (7) Grote, F.: Schweiz. med. Wchnschr. *72*:1333, 1942. (8) Halbeisen, W. A.; Gruber, C. M., Jr., and Gruber, C. M.: Proc. Soc. Exper. Biol. & Med. *68*:343, 1948. (9) Halbeisen, W. A.; Gruber, C. M., Jr., and Gruber, C. M.: Anesthesiology *10*:585, 1949. (10) Halbeisen, W. A.; Gruber, C. M., Jr., and Gruber, C. M.: J. Pharmacol. & Exper. Therap. *93*:101, 1948. (11) Hoorde, A. Van: Bruxelles-méd. *31*:2360, 1951. (12) Kaiser, H., and Lang, W.: Apotheker Ztg No. 24, p. 428, 1952. (13) Koppanyi, T.; Morgan, C. F., and Princiotto, J. V.: J. Am. Pharm. A. (Scient. Ed.), *44*:221, 1955. (14) Kotsovsky, D.: Med. Klin. *49*:1043, 1954. (15) Mutrux, S.: Praxis *35*:237, 1946. (16) Pottier, R.; Levis, S., and Preat, S.: Arch. internat. pharmacodyn. *88*:291, 1951. (17) Pulver, R.: Schweiz. med. Wchnschr. *73*:124, 1943. (18) Rust, T.: Praxis *34*:19, 1945. (19) Steininger, E.: Prakt. Arzt *7*:224, 1953. (20) Tusing, T. W.; Paynter, O. E., and Kundzins, W.: To be published. (21) Ujszaszy, L.: Therap. Umschau *5*:76, 1948. (22) Zuercher, P.: Praxis *35*:369, 1946.

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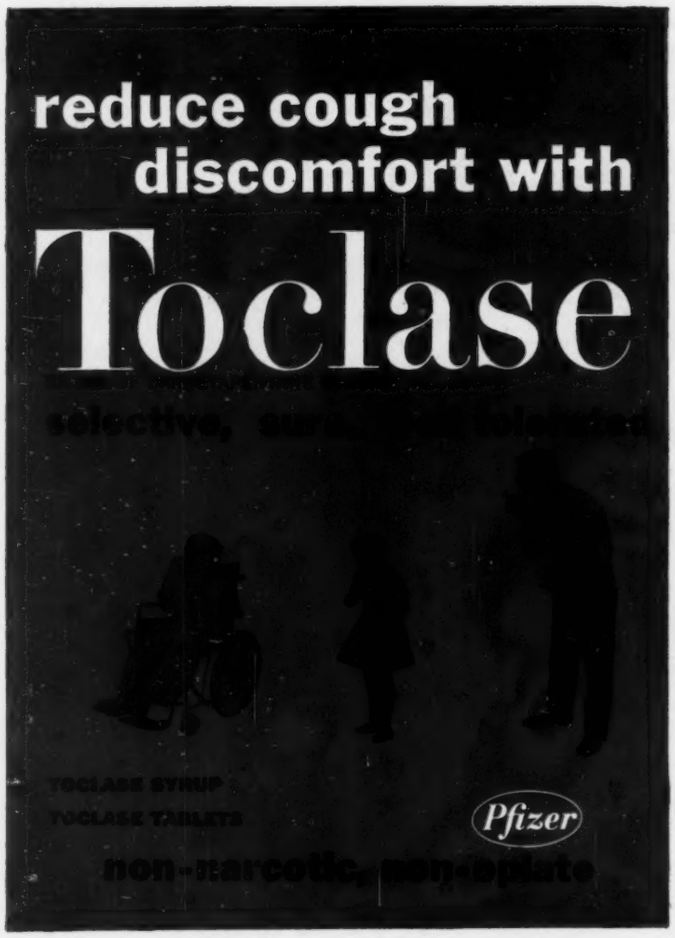

"I hope you don't think you can charge for this visit—that's the same diagnosis you gave me six months ago!"

(Continued from page 92)

SURGEON—GENERAL AND THORACIC; COMPLETING 6 years surgical training, university hospital; 2 years assistant and chief surgeon combat area USAMC; seeks group or association; early 30's. Woodward Medical Bureau, 185 N. Wabash, Chicago 1, Illinois. I

ANESTHESIOLOGIST—TRAINED UNIVERSITY HOSpital; 1 year, anesthesiology, large hospital; passed part I; seeks fee for service connection, New York, Massachusetts, Virginia; licensed Pennsylvania; DNBME. Woodward Medical Bureau, 185 N. Wabash, Chicago, Illinois. I

FULL TIME POSITION FOR PHYSICIAN—AGE 36; married; 6 dependents; experienced in teaching, actual and administrative research, and surgical practice; grade A school graduate, 1945, BS, MD, MS; diplomate American Board of Surgery; military category IV; Box 2467 I, % AMA.

OBSTETRICIAN-GYNECOLOGIST — 37; VETERAN; Syracuse graduate; Board eligible; diplomate National Boards; desires association with established individual or group; locum tenens for 12 months or more considered. Box 2432 I, % AMA.

GENERAL PRACTITIONER-SURGEON—38; EXPERIenced; wishes to establish independent practice in community of 4 to 10,000; West or Midwest; hospital, solicits information from physicians believing their community needs another MD. Box 2431 I, % AMA.

RADIOLOGIST—CERTIFIED IN DIAGNOSIS, THERapy, and isotopes; young, married; family, category IV; presently on staff of eastern medical school; desires independent or permanent position; prefer South or West coast. Box 2466 I, % AMA.

ORTHOPEDIST — 40; MARRIED; FAMILY; BOARD eligible; completes military obligation February, 1957; desires group or private practice within 150 mile radius of Chicago; excellent qualifications and references. Box 2462 I, % AMA.

ORTHOPEDIST—35; BOARD CERTIFIED; CATEGORY IV; 4 years practice; university connections; California license; seeking location, group, or association in desirable location for raising family, West, Southwest. Box 2461 I, % AMA.

BOARD DERMATOLOGIST—EXCELLENT TRAINING, experience; best references; publications; age 34; married; young child; desires permanent association North, Middle East or West Coasts. Box 2442 I, % AMA.

MATURE SURGEON — 15 YEARS EXPERIENCE; fully qualified, particularly malignancy; desires group or private association in West; licensed California and Texas; has Board and College. Box 2437 I, % AMA.

ORTHOPEDIST—32; MARRIED; BOARD CERTIFIED; military service completed; desires association with practicing orthopedist; Middle Atlantic area preferred. Box 2436 I, % AMA.

UROLOGIST—BOARD QUALIFIED; DESIRES ASSOciation with group or urologist; National Board diploma, also Florida license; Veteran, married, family; experienced. Box 2435 I, % AMA.

OPHTHALMOLOGIST—BOARD CERTIFIED; 34; FAMily; 4 years practice; desires group or association leading to partnership; prefers west, will consider other areas. Box 2429 I, % AMA.

INTERNIST—BOARD QUALIFIED; AGE 31; ASSISTant staff, Cleveland Clinic; desire association with group, clinic, or established internist; available July, 1957. Box 2468 I, % AMA.

INTERNIST—30; MARRIED; FAMILY; PRIORITY IV; completing residency and available July, 1957; desires association with group or established internist or surgeon. Box 2464 I, % AMA.

OBSTETRICIAN-GYNECOLOGIST — AGE 35; LARGE family; category IV; desires association or group preferably in the Eastern United States. Box 2458 I, % AMA.

GASTROENTEROLOGIST—30; TRAINED G.I. X-RAY, gastroscopy, research, university center; Board eligible; association with individual or group anywhere. Box 2455 I, % AMA.

THORACIC SURGEON — BOARD QUALIFIED; MARried; children; completed military obligation; licensed Pennsylvania; desires private or group association; East preferred. Box 2454 I, % AMA.

ORTHOPEDIST — 31; MARRIED; COMPLETED 1ST part of Boards and service; university trained; excellent qualifications: desires association with group or individual with opportunity to develop own practice; California or Chicago area preferred. Available January 1, 1957. Box 2397 I, % AMA.

PEDIATRICIAN — 30; BOARD ELIGIBLE; FAMILY; priority IV; practicing in Southwest; desires to relocate, after January, 1957, on West coast in group association preferably with another pediatrician; have California license. Box 2364 I, % AMA.

PATHOLOGIST—33; CERTIFIED PATHOLOGIC ANatomy; eligible clinical pathology; married with family; desires permanent location in private practice of pathology, either as associate or laboratory director. Box 2393 I, % AMA.

RADIOLOGIST — 32; CERTIFIED DIAGNOSIS AND therapy; authorized for isotopes including Co-60; 3 years experience since training including academic appointment; military service completed; married; immediately available. Box 2388 I, % AMA.

PHYSICAL MEDICINE—44; FAMILY; DIPLOMATE American Board; desires directorship rehabilitation center preferably hospital medical school affiliation; experienced heading large departments, clinical research, university affiliation 10 years. Box 2361 I, % AMA.

AVAILABLE—AMERICAN BOARD SPECIALISTS TO head departments, join groups, etc.; physicians for private practice, assistants or associates, industry, public health. Please write for recommendations. Shay Medical Agency, 55 E. Washington, Chicago. I

WHEN IN NEED OF AMERICAN BOARD SPECIALists to head departments, physicians for private practice, public health or industry, please write for recommendations. Burneice Larson, Director, Medical Bureau, 900 N. Michigan Ave., Chicago. I

UROLOGIST—30; BOARD ELIGIBLE; FAMILY; FACulty New York University-Bellevue; desires relocation; private practice; association; group; military obligations fulfilled. Box 2420 I, % AMA.

ANESTHESIOLOGIST—CERTIFIED; 44; FAMILY; DEsires change; will consider any ethical permanent arrangement; group, solo or organize department. Box 2415 I, % AMA.

GENERAL SURGEON — 34; MARRIED; VETERAN; Board eligible; desires association with established surgeon, gynecologist, or group; Mid-West of Virginia preferred. Box 2410 I, % AMA.

GENERAL SURGEON—FAMILY; VETERAN; CHIEF resident large charity hospital; available July, 1957; excellent training in surgical specialties including thoracic; prefer group association in south. Box 2357 I, % AMA.

SURGEON—MIDDLE AGED; WITH WIDE EXPERIence in general and industrial surgery; desires new location; prefer full time industrial position in East. Box 2343 I, % AMA.

FLORIDA—LICENSED FACS, WHO LIKES GENERAL practice—wants to become associated with general surgeon or general practitioner in Florida. Box 2358 I, % AMA.

PROCTOLOGIST—BOARD QUALIFIED AND AVAILable upon completion of residency, June 1957; desires good location; solo, association, or group; best references. Box 2376 I, % AMA.

OPHTHALMOLOGIST — BOARD CERTIFIED; PRIORity IV; experienced; desires private practice, location, association or group. Box 2373 I, % AMA.

INTERNIST—BOARD CERTIFIED; 35; DESIRES POsition with opportunity to concentrate on cardiology. Box 2381 I, % AMA.

BOARD SURGEON — 36; MARRIED; 4 CHILDREN; qualified thoracic Boards; completing military service; available May 1957. Box 2404 I, % AMA.

(Continued on page 108)

ARMY, NAVY, AIR FORCE STUDY ON MOTION-SICKNESS

PREVENTIVES REVEALS...

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2. *in recommended dosage Bonamine is notably free from side reactions—*

Bonamine did not show ". . . a higher incidence of any side-effect than did the placebo."†

relief of symptoms in minutes
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Tablets, tasteless, scored, 25 mg. Chewing Tablets, mint flavored, 25 mg.

Pfizer

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†Report of Study by Army, Navy, Air Force Motion Sickness Team; J.A.M.A. 160:758 (March 3) 1956.

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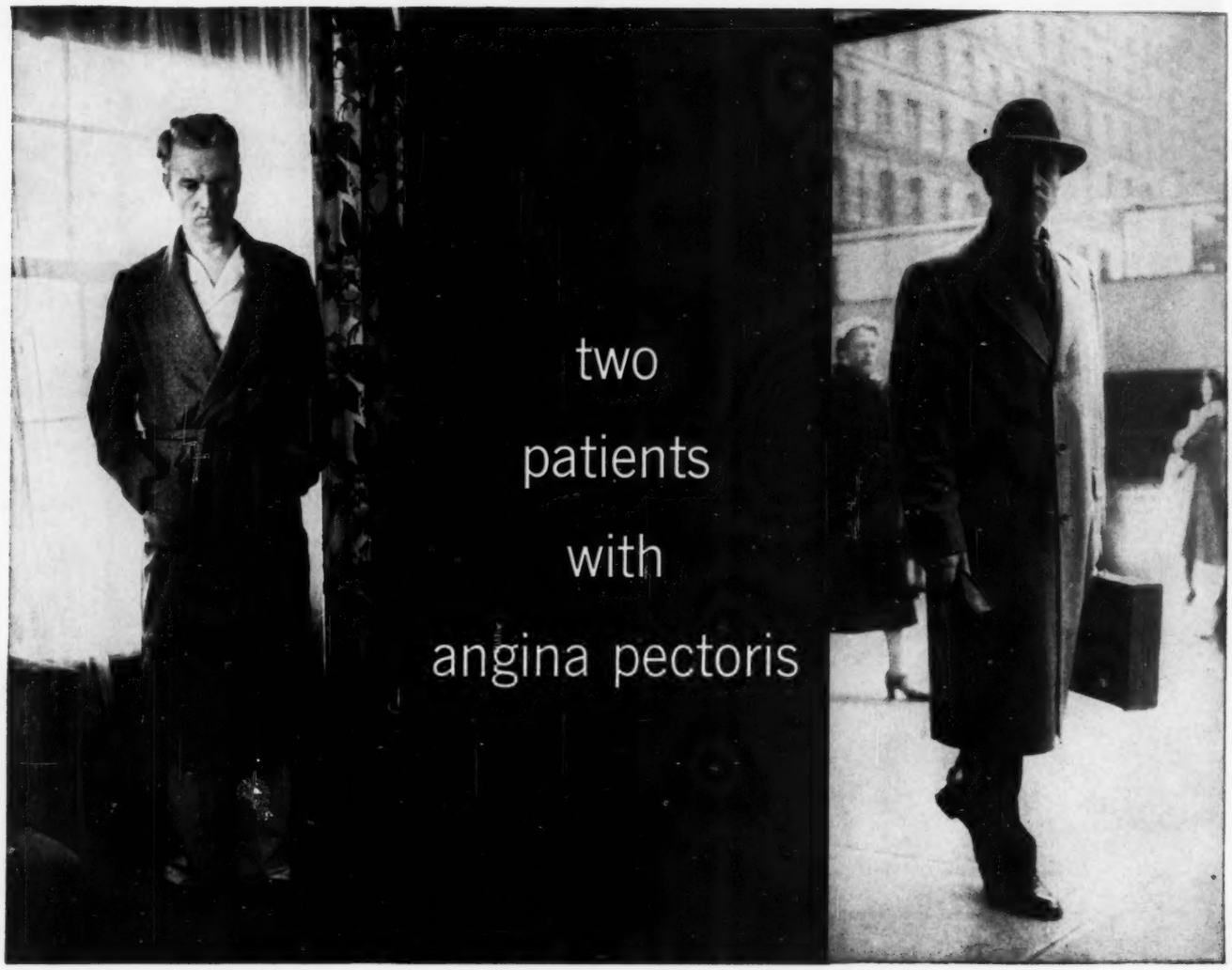

...your treatment can make *the difference*

In angina pectoris: ". . . the difference between complete, or almost complete, absence of symptoms, or a prolonged illness with much suffering" may lie in routine prophylaxis with Peritrate.[1]

New studies continue to confirm the effectiveness of this long-acting coronary vasodilator. "Impressive and sustained improvement" is observed in patients on Peritrate therapy.[2]

Simple prophylaxis: Peritrate is not indicated to abort the acute attack (nitroglycerin is still the drug of choice). However, you can reduce or eliminate nitroglycerin dependence and provide continuing protection against attacks of angina pectoris with Peritrate. Prophylaxis is simple: 10 or 20 mg. of Peritrate *before meals* and at bedtime. Maintenance of a continuous daily dosage schedule is important for successful therapy.

Peritrate has been demonstrated to prevent or reduce the number of attacks, lessen nitroglycerin dependence, improve abnormal EKG findings and increase exercise tolerance.[3,4,5]

The specific needs of most patients and regimens are met with Peritrate's five dosage forms: Peritrate 10 mg. and 20 mg. tablets; Peritrate Delayed Action (10 mg.) for continuous protection through the night; Peritrate with Phenobarbital (10 mg. with phenobarbital 15 mg.) where sedation is also required; Peritrate with Aminophylline (10 mg. with aminophylline 100 mg.) in cardiac and circulatory insufficiency.

Usual Dosage: 10 to 20 mg. *before meals* and at bedtime.

References: **1.** Rosenberg, H. N., and Michelson, A. L.: Am. J. M. Sc. *230*:254 (Sept.) 1955. **2.** Kory, R. C., *et al.*: Am. Heart J. *50*:308 (Aug.) 1955. **3.** Winsor, T., and Humphreys, P.: Angiology *3*:1 (Feb.) 1953. **4.** Plotz, M.: New York State J. Med. *52*:2012 (Aug. 15) 1952. **5.** Dailheu-Geoffroy, P.: L'Ouest-Médical, vol. 3 (July) 1950.

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'53

"At the end of the experiment, the sensitivity of these bacteria to this drug [FURADANTIN] was determined and found to be the same as before the experiment."[2]

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"Microorganisms, in vitro, did not appear to develop resistance to FURADANTIN."[3]

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"It is noteworthy that this drug [FURADANTIN] shows no tendency to permit development of resistant bacterial strains in vitro."[4]

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"FURADANTIN is a chemical agent of the nitrofuran group. . . . Most important is the fact that they show little tendency to permit the development of bacterial resistance."[5]

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5 years of extensive use in genitourinary tract infections demonstrate negligible development of bacterial resistance

In addition to the significant lack of development of resistant bacterial mutants attending therapy with FURADANTIN, unexcelled effectiveness and a wide margin of safety combine to make it an agent of choice in the treatment of pyelonephritis, cystitis and prostatitis.

FURADANTIN . . . "may be unique as a wide-spectrum antimicrobial agent that is bactericidal, relatively nontoxic, and does not invoke resistant mutants."[6]

effective

- rapid antibacterial action against a wide range of gram-positive and gram-negative bacteria and organisms resistant to other agents including Proteus, and certain strains of Pseudomonas
- negligible development of bacterial resistance
- no cross-resistance to other antibacterials since FURADANTIN is unrelated chemically to antibiotics or sulfonamides
- effective in the presence of blood, pus and urine

excellent tolerance

- no reports of injury to kidneys, liver or blood-forming organs
- no cases of blood dyscrasia, monilial superinfection, crystalluria or staphylococcic enteritis ever reported
- no cross-sensitization to other drugs
- side effects, such as headache, dizziness, diarrhea and pruritus ani, are rarely associated with FURADANTIN therapy

FURADANTIN DOSAGE: Average adult dose is four 100 mg. tablets daily; 1 tablet during each meal and 1 on retiring, with food or milk. Average dosage range for children is 5 to 7 mg. per Kg. per 24 hours.

SUPPLIED: Tablets, 50 and 100 mg., bottles of 25 and 100. Oral Suspension (5 mg. per cc.), bottle of 118 cc.

FURADANTIN *Sensi-Discs for bacterial sensitivity tests are available from Baltimore Biological Laboratories.*

REFERENCES: 1. Paul, H. E., et al.: Proc. Soc. Exp. Biol., N. Y. 79:199, 1952. 2. Mintzer, S., et al.: Antibiotics 3:151, 1953. 3. Abrams, M., and Prophete, B.: Missouri M. 51:280, 1954. 4. Dodson, A. I., and Hill, J. E.: Virginia M. Month. 82:385, 1955. 5. Lowsley, O. S., and Kerwin, T. J.: Clinical Urology, Baltimore, Williams & Wilkins Company, 1956, ed. 3, pp. 981-982. 6. Weisbren, B. A., and Crowley, W.: A.M.A. Arch. Int. M. 95:653, 1955.

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one of the nitrofurans—
a new class of
antimicrobials—
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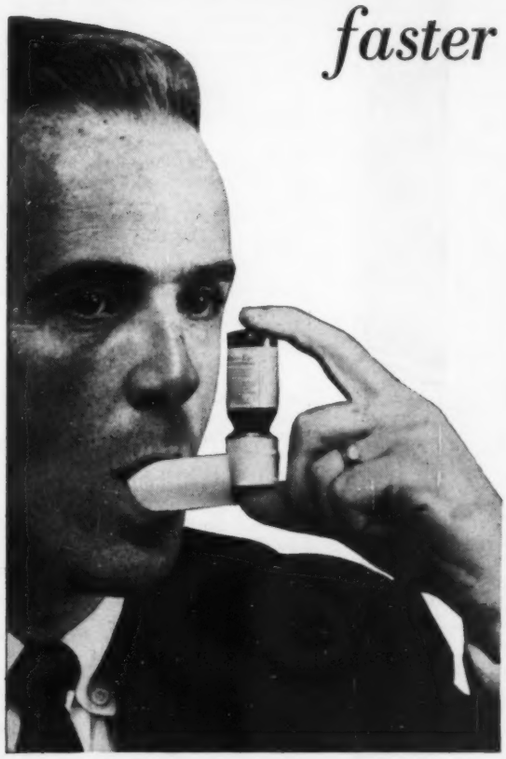
In Angina Pectoris

Medihaler-Nitro



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MEDIHALER-NITRO is octyl nitrite (1%) in aerosol solution; delivered by metered-dosage nebulization, using the lungs as portal of entry, it assures faster relief than nitroglycerin tablets, as well as prolonged effect; it is free from disagreeable, irritating odor, and notably unburdened by undesirable side actions.

To be used only with the MEDIHALER® ORAL ADAPTER made of unbreakable plastic with no moving parts. Medication and Adapter fit into pocket-size plastic carrying case. One or two inhalations provide prompt relief of an attack of angina pectoris.

MEDIHALER...*The New Measured-Dose Principle of Nebulization*

and for definitive therapy...
fewer and fewer attacks
of less and less intensity

Long-acting tablets containing pentaerythritol tetranitrate (PETN) 10 mg. and Rauwiloid® (alseroxylon) 1 mg. reduce the incidence and intensity of attacks and lead to objective improvement demonstrable by ECG. Dosage: one or two tablets q.i.d., before meals and on retiring

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BOOKS RECEIVED

Books received by THE JOURNAL *are acknowledged in this column. Selections will be made for more extensive review in the interests of* THE JOURNAL *readers as space permits. Books listed in this department are not available for lending or sale through the American Medical Association.*

Sick Children: Diagnosis and Treatment. By Donald Paterson, M.D., F.R.C.P., Consulting Physician to Hospital for Sick Children, Great Ormond Street, London. Revised by Reginald Lightwood, M.D., F.R.C.P., D.P.H., Director, Paediatric Unit, St. Mary's Hospital Medical School, University of London, London. With assistance of F. S. W. Brimblecombe, M.D., M.R.C.P., D.C.H., Paediatrician, Royal Devon and Exeter Hospital, and Exeter City Hospital, Exeter, Devon, England. Seventh edition. Cloth. $8.75. Pp. 593, with 99 illustrations. J. B. Lippincott Company, 227-231 S. Sixth St., Philadelphia 5; 2083 Guy St., Montreal, Canada; Cassell & Co., Ltd., 37-38 St. Andrew's Hill, Queen Victoria St., London, E.C.4, England, 1956.

Epileptic Seizures: A Correlative Study of Historical, Diagnostic, Therapeutic, Educational and Employment Aspects of Epilepsy. Editors: John R. Green, M.D., and Harry F. Steelman, M.D. Based on proceedings of joint meetings of Seventh Western Institute on Epilepsy, Western Society of Electroencephalography, and American Academy of General Practice (Arizona chapter) on November 10, 11, 12, 1955, in Phoenix, Arizona. Cloth. $5. Pp. 165, with illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1956.

The Primary Psychiatric Syndromes: Criteria for Clinical Diagnosis. By Dwight L. Moody, L.R.C.P., L.R.C.S., L.R.F.P.S., Consultant in Psychological Medicine, St. Catharines General Hospital, St. Catharines, Ontario. With foreword by William Blyth, M.D., F.R.F.P.S.G., D.P.M., Consultant in Charge of Neuro-psychiatric Unit, Glasgow Royal Infirmary. Cloth. $7.50. Pp. 356. John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England; Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1956.

Vital Statistics of the United States 1954. Volume I: Introduction and Summary Tables. Tables for Alaska, Hawaii, Puerto Rico, and Virgin Islands. Marriage, Divorce, Natality, Fetal Mortality and Infant Mortality Data. Prepared under supervision of Halbert L. Dunn, M.D., Chief, National Office of Vital Statistics. U. S. Department of Health, Education, and Welfare, Public Health Service, National Office of Vital Statistics. Cloth. $3.75. Pp. 358. Superintendent of Documents, Govern. Print. Off., Washington 25, D. C., 1956.

The Foundations of Human Behavior: Dynamic Psychology in Nursing. By Theresa Grace Muller, R.N., A.M., Professor of Nursing, Educational Director, Graduate Studies in Psychiatric Nursing, University of Nebraska, Omaha. Foreword by William A. Hunt, Chairman, Department of Psychology, Northwestern University, Evanston, Ill. Cloth. $4.50. Pp. 254. G. P. Putnam's Sons, 210 Madison Ave., New York 15; McAinsh & Co., Ltd., Toronto, Canada, 1956.

Vitamins and Hormones: Advances in Research and Applications. Volume XIV. Edited by Robert S. Harris, Professor of Biochemistry of Nutrition, Massachusetts Institute of Technology, Cambridge, G. F. Marrian, Professor of Medical Chemistry, University of Edinburgh, Edinburgh, Scotland, and Kenneth V. Thimann, Professor of Plant Physiology, Harvard University, Cambridge, Mass. Cloth. $10. Pp. 486, with illustrations. Academic Press, Inc., 111 Fifth Ave., New York 3, 1956.

Clinical Unipolar Electrocardiography. By Bernard S. Lipman, A.B., M.D., F.A.C.P., Instructor in Medicine, Emory University School of Medicine, Atlanta, and Edward Massie, A.B., M.D., F.A.C.P., Associate Professor of Clinical Medicine, Washington University School of Medicine, St. Louis. Third edition. Cloth. $7.50. Pp. 397, with 325 illustrations. Year Book Publishers, Inc., 200 E. Illinois St., Chicago 11, 1956.

Pulmonary Circulation and Respiratory Function: A Symposium Held at Queen's College, Dundee. [Under aegis of] University of St. Andrews, [Fife, Scotland]. Cloth. $2. Pp. 44, with illustrations. E. & S. Livingstone, Ltd., 16 and 17 Teviot Pl., Edinburgh 1, Scotland; Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1956.

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• This space contributed by the publisher

(Continued from page 96)

PROFESSIONAL AND TECHNICAL AIDES

WANTED—(a) CHIEF MED TECH; staff of 9 techs in modern, well equip'd dept; 200 bd vol gen hosp, bldg 2 yrs old; indus city 100,000; E. (b) MED TECH; vol gen hosp 300 bds; abt $4200; resid suburb impor univ med ctr; Pac Coast. (c) MED TECH; sm gen hosp; $5000, part mtce; Alaska. (d) MED TECHS; vol gen hosp 50 bds; apprv'd JCAH; to $6000; lovely N Engl resort twn. (e) 3 MED TECHS; 400 bd gen. hosp, fully apprv'd; excel lab staff, facil; NYC area. (f) BACTERIOLOGIST; fully apprv'd vol gen hosp, 300 bds; city nr Chgo; $4200. (g) LAB & X-RAY TECH; newly open'd gen hosp, 35 bds; beaut resort loca; SE. (h) CHIEF MED TECH; full admin, tech resp for active lab, gen chge Board path; staff of 8 techs; gen hosp 150 bds; to $4800; prog city 50,000; MW. (i) X-RAY TECH; 60 bd gen hosp, apprv'd JCAH; summer, winter resort twn; Fla. (j) CHIEF MED TECH; vol gen hosp, 400 bds, fully apprv'd; lge indus city; E. Woodward Medical Personnel Bureau, 185 N Wabash, Chicago. L

WANTED — TECHNICIAN; FOR RESEARCH IN IMmunology and serology; BS or MS degree in bacteriology or related science; excellent working conditions; 40 hour week; modern new research laboratory. Apply: Mrs. S. N. Earle, Laboratory Supervisor, Mount Sinai Hospital, Chicago 8, Illinois. L

WANTED—BLOOD BANK TECHNICIAN; BS OR MS degree in related subjects and experience in blood banking desirable; interesting work with chance for advancement; 40 hour week; excellent working conditions. Apply: Mrs. S. N. Earle, Laboratory Supervisor, Mount Sinai Hospital, Chicago 8, Illinois. L

WANTED—(a) LAB. ASS'T IN CLINICAL CHEMISTRY; 400 bed gen. hosp; new lab. dept; univ. city, Pac. NW. (b) CHIEF TECH; vol. gen. hosp, 425 beds; lab. staff of 24; hour's drive from NYC on Long Island Sound. (c) LAB TECH; small gen. hosp; res. town, So. Calif; fare paid to Calif. (d) CHIEF TECH; pref. man with Master's, min. 3 yrs exp; 175 bed gen. hosp; affil. med. school; So. (e) CYTOLOGY TECH; one of country's leading clinics. (f) CHIEF AND STAFF TECHS; vol. gen. hosp., 350 beds; teh'g prog; $425 and $375, respectively; So. (g) BLOOD BANK TECH; resort town, Pac. NW. Medical Bureau, Burneice Larson, Director, 900 N. Michigan Avenue, Chicago. L

WANTED — REGISTERED MEDICAL TECHNICIAN; ASCP; for position of instruction for approved school of medical technology. Apply: Mrs. S. N. Earle, Laboratory Supervisor, Mount Sinai Hospital, Chicago 8, Illinois. L

MEDICAL TECHNOLOGIST — MAN OR WOMAN; preferably certified or at least prepared for examination; blood count, smears, urinalysis, blood chemistry, serology; 44 bed modern hospital in northern New Jersey resort area; 44 hour week; extremely reasonable quarters available; salary open; send qualifications. Box 2419 L, % AMA.

WANTED—ASCP REGISTERED LABORATORY TECHnicians; for 250 bed general hospital; salary open, depending on experience and training. Apply: Charles Chesner, MD Pathologist, St. Joseph Hospital, Lorain, Ohio. L

PRACTICES FOR SALE

CALIFORNIA — GENERAL PRACTICE INCLUDING solo medical building near San Diego; growing community; fine opportunity for practice and investment; $15,000 cash required. Contact: James Lowrie, 530 Broadway, San Diego, Belmont 9-1343. P

CALIFORNIA — GENERAL PRACTICE; ORANGE County, beautiful beach resort town; grossing $15,000 after only a few years; ideal for settling down in growing area; small initial investment including equipment and facilities; available now; leaving to specialize. Write: Box 295, Newport Beach, California. P

CALIFORNIA — GROWING SURGICAL PRACTICE with equipment in small Southern California city for immediate sale; desirable office with favorable lease. Box 2463 P, % AMA.

CALIFORNIA—OBSTETRICS-GYNECOLOGY; 40 MINutes from San Francisco; home-Office combination, rent or purchase; will stay to introduce; move in as associate, take over in 6 months. Box 2433 P, % AMA.

COLORADO—UNUSUAL OPPORTUNITY; BUSY GENeral practice in rural Colorado; 5 local hospitals; excellent income; most liberal terms on equipment; leaving for specialty training June 1957. Box 2377 P, % AMA.

FLORIDA—MD WANTED FOR GROWING COASTAL resort city of 2,000 population; no other MD at present; county approved for new Hill-Burton Hospital; good schools and county hospital; excellent hunting and fishing; clinic available. Box 2405 P, % AMA.

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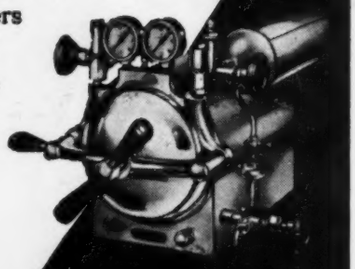

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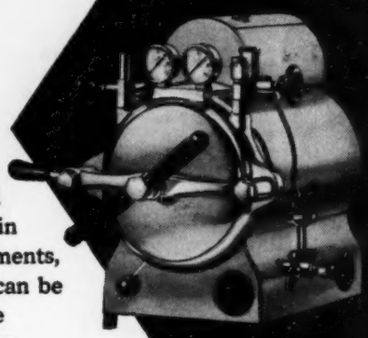

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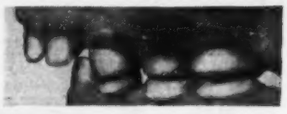

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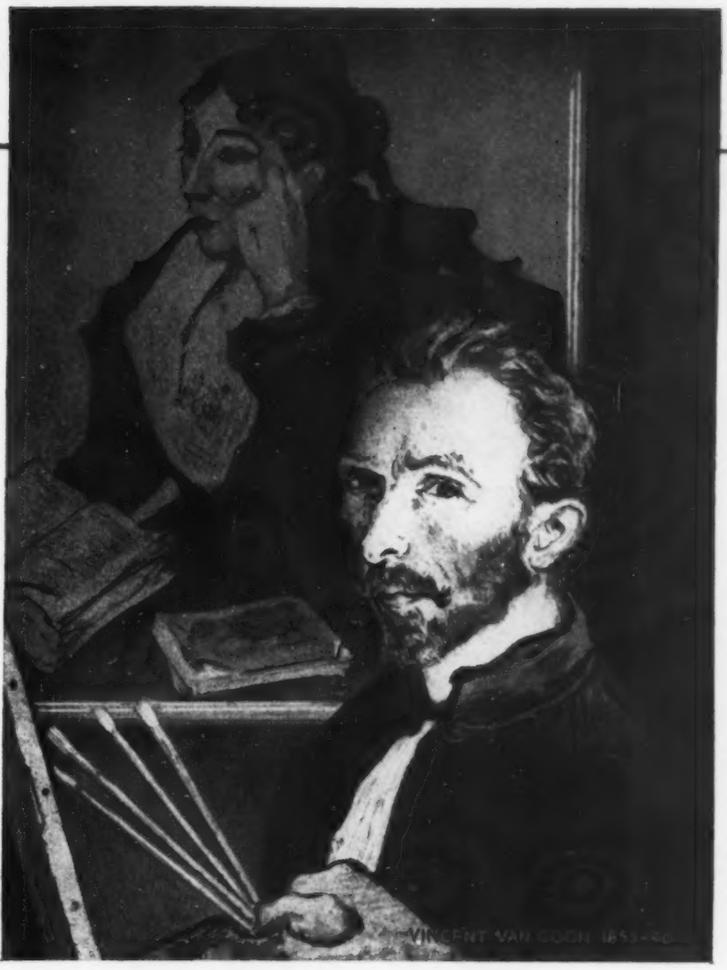

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